THE ENGINEERING AND MINING JOURNAL.

VOLUME LVII., JANUARY TO JUNE, 1894.

INDEX.

(ILLUSTRATED ARTICLES ARE DESIGNATED BY AN ASTERISK.)

A

Abegg, W. A., Russian Finances..... 364
*Abeling's Plunger for Concentrating Jigs..... 607
Abingdon & Damascus R. R..... 324
Abnormal Man..... 27
Ackermann's Pat. Aluminum Fluoride..... 155
Acme Machinery Co..... 516
Acme Mg. Co., Wyo..... 137
Adams Boiler Co..... 491
Adams Mg. Co., Minn..... 614
Adams Pat. Sand Molds..... 610
Adams, W. H., Distribution of Electrical Power..... 581
Addenda Group, Cal..... 588
Addie C. Mg. Co., Colo..... 189
Addyman, F. T., *Agricultural Analysis*..... 363
Advance Coal Co., Ill..... 61
Aetna Standard Iron and Steel Co... 60
Afghanistan, Lead Mining..... 35
African Gold Recovery Co., 16, 259, 309, 424, 544, 616
Agricultural Analysis..... 363
Agricultural Chemistry..... 363
Ahern Mill, Cal..... 588
Ahern's Pat. Boiler..... 610
*Ainsworth Mining District, B. C... 69
Air, Compressed, Heating, Parke's Pat..... 83
Air, Compressed, Uses of..... 435
Air Compressor, Birner & Messing's Pat..... 538
Air Compressor, Brotherhood's Pat.. 203
Air Compressor, Buerkle's Pat..... 179
Air Compressor, Champ's Pat..... 227
Air Compressor, Flood's Pat..... 466
*Air Compressor Plant, Nottingham Colliery..... 125
Air Compressor Regulator, Sargeant's Pat..... 179
*Air Compressor, Riedler Duplex.. 221
*Air Compressor, Riedler, for South Africa..... 201
Air Compressor, Schutz & Henderson's Pat..... 347
Air Lock, Barr's Pat..... 179
Air Pump, Weatherhead's Pat., 59, 83, 107, 179, 203, 538
Air Pump, Dickens' Pat..... 179
Air Pump, Savill's Pat..... 131
Air Pump, Wolff & Hyde's Pat..... 395
Air Valve, Pidcock's Pat..... 59
Aitken's Pat, Obtaining Cyanides.... 443
Akka-Haiffa & Damascus R. R..... 364
Alabama Coal Production..... 181
Alabama, Cost of Coal and Iron..... 75
Alabama Geological Survey.....195, 363
Alabama Gold Belt..... 57
Alabama Iron Exports..... 313
Alabama Iron Making..... 605
Alabama Iron and Steel Co 520, 539
Alabama Mining Institute..... 12
Alachua Phosphate Co., Fla..... 110
Aladdin Gold Mg. Co., Colo..... 469
Alamo Mg. Co., Colo..... 229
Alaska Boundary Survey..... 534
Alaska-Mexican Gold Mining Co.,397, 418, 492
Alaska-Treadwell Gold Mg. Co., 11, 37, 56, 61, 133, 167, 181, 203, 253, 323, 348, 419, 445, 508, 540
Alabama Gold Mine, Cal..... 277
Albany Mg. and Milling Co., Ore. 183, 256
Albemarle Mfg. Co., N. M..... 543
Albion Mines, Transvaal..... 209
Albion Steel Co., Pa..... 400
Alcalde Coal Mine, Cal..... 229
Alexander City Placers, Mont..... 520
Algeria, Ore Exports..... 471
Algeria, Phosphate Discoveries..... 465
Algoma Coal Co., Va..... 353
Algoma Nickel Mines, Ont..... 40
Alhambra Mine, N. M..... 231
Alice Mg. Co., Colo..... 373, 540
Alice Mg. Co., Mont..... 63, 374, 423
Alkali Salts, Blackman's Pat..... 83
Allan Mill, Colo..... 349
Allen Group, Idaho..... 251
Allen's Pat., Metallurgical Furnace.. 155
Allen's Patent Ore Smelters..... 443
Allentown Rolling Mill..... 12
Alligator Mine, Colo..... 540
Allouez Mfg. Co., Mich..... 212, 320
*Alloys, Properties of..... 53
Alma & Argonaut, Cal..... 157
Alma District, Colo..... 493
Alpha Con. Mfg. Co., Nev..... 470
Alpha Mfg. Co., Colo..... 517
Alpine Mine, Colo..... 540
Alpine Mine, Idaho..... 520
Alps, Wire Tramway in..... 124
Alta Mine, Mont..... 469
Alta Mg. Co., Nev. 63, 231, 279, 374, 399, 447, 470, 495, 518, 557
Alta-Regent Mine, Colo..... 540
Altuma Mg. Co., Cal..... 516
Alumina Making, Heibling's Patent. 610
Aluminous Minerals, Purifying, Schwahn's Pat..... 155
Aluminum Bayonet Scabbards..... 514
Aluminum-Boron-Bronze..... 59
Aluminum-Copper-Zinc Alloy, Sugg's Pat..... 562
Aluminum and the Earthy Metals 459, 507
Aluminum Fluoride, Ackerman's Pat. 155
Aluminum Manufacture, Case's Pat. 83
Aluminum Phosphate Mineral, New. 291
Aluminum, Plating..... 130
Aluminum, Prices..... Weekly
Aluminum Prices, England..... 155
Aluminum, Reduction as a Scientific Problem..... 315
Aluminum, Rolling..... 27
Aluminum Salts, Kessler's Patent... 11
Aluminum Solder, Nicolai's Pat..... 490
Aluminum Solder, Roman's Pat..... 131
Aluminum Solder, Singer's Pat..... 562
Aluminum Sulphide, Vautin's Pat. 59, 131
Aluminum Yachts..... 101
Alzuia Placers, Wash..... 496
Amador Queen No. 2, Cal..... 277
Amalgamated Ass'n. Iron and Steel Works 180, 492, 516, 559, 587
Amalgamating Silver Ores, Janin's Pat..... 251
Amalgamator, Armbruster's Pat..... 347
Amalgamator, Gaffeen's Pat..... 562
Amalgamator, Green's Pat..... 347
Amalgamator, Patterson's Pat..... 83
Amalgamator, Tornaghi's Pat..... 107
Amalgamator, Trug's Pat..... 371
Amatlan de Canas Mg. Co., Mex..... 352
Amazon Mg. Co., Colo..... 445
Amazon Mine, S. Dak..... 351
Ambrose's Pat. Rock Drill Valves ... 395
American Ass'n for the Advancement of Science..... 563
American Boiler Co..... 611
American Bridge and Iron Co..... 516
American Chemical Society...156, 276, 491
American Coal Co., Ala..... 181
American Coal Co., Md..... 11
American Developing and Mg. Co., Mont 38, 566
American Diamonds..... 55
American Flag Mg. Co., Colo..... 181
American Institute Electrical Engineers 491
American Institute Electrical Engineers, "Transactions"..... 291
American Institute Mining Engineers, 132, 172, 195, 222, 247
American Iron and Steel Works..... 387
American Mineral Works..... 276
American Mg. Co., Mont..... 508
American Mg. and Townsite Co., Mont..... 159
*American Mg. Co., Mo..... 561
American Nettle Mg. Co., Colo.....86, 181
American Pneumatic Tool Co..... 612
American Republics, Bureau.....243, 339
American and Russian Petroleum.... 366
American Society Civil Engineers, 36, 60, 228, 276, 444, 467, 563, 593
American Society Mechanical Engineers 276, 372, 448, 467, 544
American Steamers on the Manchester Canal..... 514
American Steel Barge Co..... 228
American Steel Casting Co.....324, 348
American Tube and Iron Works..156, 157, 467
American Turquoise Mg. Co..... 11
American Iron Co., Mich.....14, 159
Ames' Pat. Hydrocarbon Burner..... 251
Amethyst District, Colo..... 349
Amethyst Mg. Co., Colo.....446, 613
Amizett District, N. M..... 112
Ammonia and Ammonia Compounds. 435
Ammonia Motor for Street Cars..... 579
* Amy & Silversmith Case.....218, 226, 315, 410, 423, 555
Anacortes Mg. Co., Wash..... 616
Anaconda Mg. Co., Colo..... 14, 37, 613
Anaconda Mg. Co., Mont...87, 183, 231, 279, 374, 447, 472, 494, 542, 566
Anaconda Placer Co., N. M..... 63
Analysis, Qualitative, Outline of. 123, 170
*Analyzing Gases, Uehling's Apparatus..... 608
Andersen, C., Cyandide Process at Deep Down Mine..... 220
Andes Mg. Co., Nev..... 63, 112
Anderson Coal Mine, Ind..... 302
Anderson's Pat. Excavator..... 610
Andover Iron Mine, N. J..... 351
Andreoli's Pat. Electrolytic Apparatus..... 59
Andreoli's Pat., Producing Ozone ... 59
Andrews Brothers Co..... 397
Andrews, Henry Porter..... 132
Andrews, John Rutt..... 252
Andrews' Pat. Mill for Rolling Tapers 323
Angels District, Cal..... 157, 229, 277
Angle-bar Rolls, Hammarbarg's Pat. 466
Anglo-American Club, Freiberg..... 491
Anglo-Mexican Co., Mex..... 400
Anglo-Saxon Extension, Colo..... 349
Animal as a Machine and Prime Motor..... 603
Annie Howe Gold Mg. Co., Ala..... 468
Annie Mg. Co., Ore..... 447
Anniston Gold Mg. Co., Ala..... 468
Anniston Pipe Co..... 35
Anthracite Coal and Imp. Co..... 39
Anthracite Coal Market, N. Y ...Weekly
Anthracite Coal Mines, Floods..... 495
Anthracite Coal Operators' Ass'n..... 41
Anthracite Coal Production.....Weekly
Anthracite Coal Production, 1893..... 50
Anthracite Coal Statistics Bureau.... 545
Anthracite Culm Banks, Reworking. 196
Anthracite Mine Reports, Pa...232, 255, 280, 423
Anthracite Miners' Wages....112, 298, 543
Antigonish Gold Mg. Co., N. S 376
Antioch Mine, Colo..... 158
Antimony, Prices.....Weekly
Antlers-Park-Regent Mine, Colo..... 373
Antwerp, French Exhibitors..... 323
Antwerp International Exposition, 97, 265, 274
Appleton & Loretto Iron Mg. Co., Mich 38
Appleton Iron Mine, Mich..... 206
April Fool Mine, Nev..... 327
Aragon Iron Mine, Mich.....86, 135
Arbacoochee Gold Mg. Co., Ala, 372, 468, 516
Archibald, C..... 84
Arctic Expedition, College..... 416
Argenta Mine, Mont..... 470
Argentine Crisis..... 427
Argentine Republic..... 531
Argentine Republic, Gold Premium.. 44
Argentum-Juniata Mg. Co., Colo..... 469
Argo Tunnel, Colo..... 349
Argyle Gold Mg. Co., Colo..... 158
Arizona Copper Co.....205, 445
Arizona, Lithographic Stone..... 105
Arizona, Mining in..... 128
Arizona Mines..... 103, 253
Arizona Trust and Mortgage Co..... 45
Arkansas Geological Survey..... 241
Armbruster's Pat. Amalgamator..... 347
Armor Plate, Chilling, Tresidder's Pat..... 35
Armor Plate, Tempering, Longsdon's Pat..... 275
Armor Plate Tests.....485, 507, 555
Armour Institute, Chicago..... 108
Armstrong, E. R..... 491
Armstrong Mine, Mont..... 374
Arnett Creek Gold Mg. Co., Idaho.. 230
Arnold Mg. Co., Mich.....14, 309, 374
Arnold, R., *Ammonia and Ammonia Compounds*..... 435
Artesian Well, Barrett's Pat..... 35
Ashland Coal Co., Va..... 353
Ashland Coal, Wis..... 616
Ashland Emery Mills..... 132
Ashland Iron Co..... 448
Ashland Mine, Mich..... 86
Ashland, Wis., Ore Shipments..... 354
* Ash Elevator, Exeter Machine Works..... 537
Ash's Pat. Electroplating..... 131
Aspen Lixiviation Works, Colo..... 469
Aspen Mines, Colo.....158, 230
Aspen Mg. and Smelting Co., Colo. 11, 525
Aspen Ore Shipments, Colo..... 349
Aspen Stock Quotations.....Weekly
Asphalt Refining, Upham's Pat..... 59
Assam Coalfields.....347, 443
Assay Commission, Testing Coins. 108, 179
Assaying, Blowpipe..... 555
Assaying, Practical, Manual..... 51
Assessments, Mining Stocks....Weekly
Astley, J. W..... 84
Atchison Home Coal Mg. Co., Kan.. 14
Athens Coal Co., Ohio..... 256
Atkins, A. R..... 41
Atlantic Furnace..... 204
Atlantic Mg. Co., Mich., 62, 134, 230, 278, 320, 350, 370, 422, 446, 494, 541, 590
Atlantic & Pacific Mine, Mont..... 374
Atlas, Crowell & Kirkpatrick's..... 267
Atterbury's Pat. Ore Pulverizer 35, 371
Auburn Mg. Co., Minn.....327, 494, 566
Augusta Mg. and Investment Co., Ga..... 565
Aultman's Pat. Coal Screen..... 155
Aurora Mg. Co., Mich., 62, 111, 206, 255, 472
Austin Engineering Co..... 180
Austin, F. C., Mfg. Co..... 397
*Austin, L. S., Composition of Lead Slags..... 81
Austin Mg. Co., Nev.....15, 255
Austin's Pat. Smelting Process..... 155
Austin, W. L., Nickel Coins..... 147
Australia, Discovery of..... 99
Australia, Iron Industry..... 513
*Australia, Milling Gold Ores.....174, 198
Australasia, Gold Milling in.....101, 128
Australasian Ore Reduction Syndicate..... 281
Australasian Institute Mining Engineers.....60, 567
Austria-Hungary, Coal..... 305
Austria-Hungary, Coal Miners' Strike..... 471
Austrian Currency Reform.....91, 475
Austrian Manufactures..... 443
Avis Chair Works..... 300
Axderfer's Pat. Gas Furnace..... 538
A. Y. & Minnie Mg. Co., Colo..... 86

B

Babcox & Wilcox Co..... 228
Babcock & Wilcox Co., Catalogue . 530
Bachelor Mine, Colo..... 206
Bacon, Earle C.....228, 253
Bacorn's Pat. Glass Furnace..... 83
Bacorn, F. W..... 563
Badger Mine, Wyo..... 567
Baggs' Pat. Flume Riffle..... 490
Baily Placers, Mont..... 183
Baker City Sampling Works, Ore 375
Baker Forge Co..... 564
Baker Red Slate Co., N. Y..... 327
Baker Red Slate Co., Vt..... 496
Baker's Contact, Colo..... 493
Balaghat-Mysore Mg. Co., India, 88, 376, 471
Ballarat Central District, Victoria 185
Bald Butte Mg. Co., Mont., 11, 21, 107, 125, 141, 205, 237, 323, 357, 419, 453, 508, 544, 549
Bald Eagle Group, Alaska..... 540
Bald Eagle Mine, Colo..... 134
Bald Mt. District, Wyo..... 496
Baldwin's Pat. Oil Burner..... 490
Baldwin, W. H..... 444
Baldy District, N. M..... 495
Baldy Queen Mg. Co., N. M..... 519
Balfour on Bimetallism..... 463
Ball, E..... 228
Ball Mills, Davidson's Pat..... 347
Ballou Mines, Mont..... 303
Balm Mine, Mont..... 159
Baltimore Coal Exchange Meeting .. 314
Baltimore Iron and Tin-plate Co..... 516
Baltimore & Ohio Coal Rates..... 329
Baltimore Stock Quotations.....Weekly
Bancroft Coal Co., W. Va..... 256
Bangor Fidelity Slate Co., Pa..... 495
Bangor Slate Quarries, Pa..... 328
Bankers' Mg. Co..... 492
Bannack District, Mont..... 52
Banner Gold Mg. Co., Idaho..... 446
Banner Tunnel, Idaho.....234, 446
Barber, Edwin Atlee, *Pottery and Porcelain of the United States*..122, 243
Barckley Coal Mg. Co., Ill..... 134
Bare Butte Mg. District, S. Dak..... 184
Barium Sulphate, Purifying, Schwahn's Pat..... 155
Barlerin's Pat. Crucibles..... 203
Barnard, Professor..... 204
Barnard Slate Co., Me..... 566
Barnes' Pat. Mine Props..... 514
Barnett, Oscar..... 228
Barrett's Pat. Artesian Well..... 35
Bartlett's Pat. Lead Pigment..... 227
Bartlett's Pat. Lead Sulphide Process..... 203
Basic Converters, Waller's Pat..... 83

Basic Bessemer Process, Wild's Pat.. 299
Basic City Land and Mg. Co., Va.161, 472
Basic Steel in 1893..... 146
Basin-Elkhorn Mine, Mont.....27, 147
Basin, Mont..... 350
Basin & Montana Gold Mg. Co., Mont.....159, 327, 494
Bass Furnace Co., Ala.....420, 564
Bates' Pat. Dredge 610
Bath Iron Works..... 156
Batopilas Mg. Co., Mex...209, 221, 233, 471
Batron's Pat. Brick Dryer..... 155
Battle Creek Coal Co., Tenn..... 280
Bauer's Pat. Coke Oven..... 107
Bauxite Deposits, Southern Appalachian..... 196
Baxter Mine, Colo..... 517
Bay Horse Mine, Ore..... 232
Bayliss, R. T..... 467
Bealy's Pat. Concentrator..... 466
Beam Gold Mg. Co., N. C..... 327
Beam, Metal, White's Pat..... 11
Beam Mill, Kindl's Pat..... 514
Bear Creek Gold Mg. Co., Idaho 93
Bear Gulch, S. Dak..... 136
Bear Lodge Mountains, Wyo..... 352
Bear Mg. Co., N. C..... 87
*Bear Run Mine, Pa., Electric Haulage..... 343
Bear Spring Furnace 204
Beardsley, F. C..... 36
Beattie, J. F..... 84
Beaver Branch Coal Co., Pa..... 21
Beche's Pat. Steam Hammer..... 179
Beckler, E. H..... 444
Beckwith Mine, Ore.....39, 256
Beckwith's Pat. Furnace..... 107
Beech Creek R.R. Mines, Pa..... 16
Begnin, L..... 84
Belcher Mg. Co., Nev., 87, 111, 135, 160, 279, 303, 327, 350, 399, 423, 447, 470, 495, 518, 542, 591, 615
Belden Mica Mg. Co., N. H., 11, 107, 203, 207, 237, 323, 419, 508
Belden Mine, Colo. 14, 301, 373, 421, 540
Belgium, Briquettes..... 509
Belgium, Coal.....195, 209
Belgium, Iron and Steel 154, 203
Belgium, Railroads..... 466
Bellaire Nail Works Co..... 492
Bella Mg. Co., Idaho.....416, 511
Belle of Colorado Group, Colo.....229, 446
Bellefonte Furnace Co..... 300
Belle Isle Mg. Co., Nev..... 399
Bellevue-Hudson Mg. Co., Colo..... 275
Bell, Lewis & Yates Coal Mg. Co., Pa. 375
Belliss' & Norcomb's Pat. Compressing Pump..... 443
Bell's Pat., Separating Magnesium Chloride..... 395
Bell & Stephens, N. M..... 351
Bell Tunnel, Colo..... 181
Belmont Brick and Tile Co..... 520
Belmont Mine, Colo..... 540, 613
Belmont Mine, Mont..... 255, 279
Belmor's Pat. Gas Furnace..... 466
*Belt Lacing, Steel..... 371
Ben Butler Mine, Colo..... 373
Bendigo District, Victoria..... 185, 209
*Bendigo, Australia, Gold Milling.174, 198
Bengal, Railroad Extension 562
Bennett, Charles A..... 180
Bennett Mine, Alaska..... 540, 588
Bennett's Pat. Amalgamator..... 275
Bennett's Pat. Dredge Bucket..... 209
Bennifield & Sutherland Mine, Ala... 516
Benton Gold Mg. Co., Va..... 352
Berliner, George..... 372
Berlin Iron Bridge Co., 85, 180, 300, 444, 445, 487
Berner's Bay Mine, Alaska..... 229, 397
Bernet's Pat. Rock Drills..... 371
Berry's Pat. Boiler..... 443
Bertha Zinc Co., Va..... 516
Berwynd-White Coal Mg. Co., Pa. 305, 328
Best & Belcher Mg. Co., Nev..135, 374, 447
Bessemerizing Lead Sulphide, Macdonald's Pat..... 155
Bethlehem Iron Co., 12, 85, 204, 252, 348, 491, 539, 563, 611
Betiline's Pat. Firing Submarine Mines..... 107
Betsy Dahl Mine, Mont..... 327
Bevier Gold Mg. Co., Minn.....350, 541
B., F. & H. Mg. Co., Idaho..... 521
Bidelman's Pat. Gas Manufacture. 419
Big Annie Mine, Idaho.....469, 493
Big Chief Mine, Colo..... 446
Big Evans Mg. Co., Colo..... 492
Big Hole Improvement Co., Mont.... 183
Big Laramie Placers, Wyo..... 424
Big Mt. Mg. Co., W. Va..... 424
Big Muddy Coal Co., Ill..... 182
Big Oak Mine, Cal..... 229
Bix Ox Mine, Mont..... 279
Big Six Mg. Co., Colo.....277, 466
Bildt's Pat. Hardening Steel..... 323
*Bilharz Sizing Machine 464
Billings Marble and Slate Co., Vt.... 136
Bimetallic Association, Boston..... 121
Bimetallic Conference, London.....410, 428
Bimetallic Mg. Co., Mont., 11, 15, 38, 86, 135, 494, 590
Bimetallic Smelter, Colo..... 398
Bimetallism, Balfour on..... 463
Bimetallism in England.....146, 602
Bingamon Creek Coal Mines, W. Va. 616
Birmingham, Ala., Iron Making..... 606
Birmingham Rolling Mills,..... 132, 156
Birmingham Water Works Co..... 323
Birner & Messing's Pat. Air Compressor..... 538
Birney Mine, Cal..... 205
Bishop & Co., Ohio..... 448
Bishop, Frederic 132
Bishop Mine, Cal..... 349
Bishop's Pat. Ore Crusher..... 443
Bismarck Mine, Colo..... 134
Bison Mg. Co., Colo.....229, 254, 326, 446
*Bittenbender's Pat. Coal Drill ...466, 557
Biwabik Bessemer Co..... 590
Biwabik Iron Mg. Co., Minn..38, 159, 202, 350, 379, 399, 494, 541
Blache Nickel Co., France..... 40
Blachman Mine, Colo..... 205
Black Bear Mine, Wash..... 543
Black Butte Mine, Ore 135
Black Diamond Coal Co., Mont..... 302
Black Diamond Coal Co., N. C..... 280
Black Diamond Coal Mg. Co., Cal.... 45
Black Diamond Tunnel, B. C..... 496
Blackford's Pat. Hydrocarbon Burner 395
Black Gold Mine, Colo..... 493
Black Hills Cement Deposits, S. Dak. 136
Black Hills Gold and Silver Extraction Co., S. Dak.....113, 375, 423, 592
Black Horse Group, N. M..... 495
Black Jack Mine, Idaho....14, 182, 253, 446
Blackmore's Pat. Making Alkali Salts 83
Black Placer, Ga..... 254
Black Prince Mine, Colo..... 86
Blackstone Mine, Idaho..... 493
Black Warrior Mine, Mont..... 596
Blackwell Mg. Co., Mont..... 591
Blain's Pat. Electric Fuse..... 610
Blair, John I..... 180
Blakeney's Pat. Cupola..... 395
Blake, W. P., Gold of Cripple Creek. 30
Blandy, John F., Arizona Mining..... 128
Blandy, John F., Lithographic Stone in Arizona..... 104
*Blanton Cam for Stamp Mills..... 227
Blanzy Colliery, France, Briquette Factory..... 341
Blast Furnaces, British..... 395
Blast Furnace Charging, Witherbee's Pat..... 443
Blast Furnace Linings..... 586
Blast Furnace, Nesmith's Pat..... 35
Blast Furnace Slag, Reactions..... 297
Blast Furnace Slag, Uses..... 392
Blast, Heavy..... 580
Blasting Cartridge, Peters' Pat..... 35
Blasting Charges, Roth's Pat..... 466
Blasting, Githens' Pat..... 83
Bliss' Pat. Cable Carrier..... 299
Blocton Coal Mine, Ala..... 520
Bloomington Mine, Mont..... 231
Blossburg Coal Mines, Pa..... 39
Blount Mt., Ala., Coal Measures..... 489
Blower, Good's Pat 227
Blower, Green's Pat..... 203
Blower, Klotz' Pat..... 275
Blower, Poole's Pat 179
Blowpipe, Ennes' Pat..... 217
Bluebird Mine, Idaho..... 613
Blue Blazes Mine, Cal..... 13
Blue Diamond Slate Co., Pa..... 496
Bluehill Mineral Spring Co., Me..... 422
Blue Iron Mg. Co., Mich..... 326
Blue Mt. Copper Mine, Ala..... 516
Blue Ridge Slate Co., Pa..... 232
Blue Springs Mg. Co., Tenn.. 16, 232, 304
Blue Springs Run, Fla..... 326
Bluffton Ore and Land Co., Ala. 420
Blumenberg's Pat. Electrolysis..... 466
Board of Trade Mine, Colo..... 613
Bob Tail Mine, Mont..... 541
Bocabic Quarry, N. B..... 40
Bodie Con. Mg. Co., Cal. 325, 373, 398, 468, 492, 516, 540, 549, 565, 588, 613
Bohemia Mg. Co., Ore..... 448
Bohn Shaft, Colo..... 230
Boiler, Ahern's Pat..... 610
Boiler, Ahrens' Pat..... 443
Boiler, Berry's Pat..... 443
Boiler, Boyce's Pat..... 466
Boiler, Brand's Pat..... 490
Boiler, Carr's Pat..... 83
Boiler, Dietz' Pat..... 275
Boiler Feed, Springer's Pat..... 271
Boiler Furnace, Lister's Pat..... 11
Boiler, Hersey's Pat..... 83
Boiler, Hogan's Pat..... 562
Boiler, Hopkins' Pat..... 443
Boiler, Johnson's Pat..... 299
Boiler, Jaeger's Pat..... 610
Boiler, Marriott's Pat..... 466
Boiler, Mosher's Pat..... 251
Boiler, Muller's Pat..... 538
Boiler, Nilson's Pat..... 323
Boiler, Plummer's Pat 179
Boiler, Shann's Pat..... 323
Boiler, Taylor's Pat..... 179
Boilers, Prussia..... 579
Boise Gold Mg. Co., Idaho.....181, 254
B. O. K. Group, Idaho..... 254
Bole, J. K..... 12, 563
Bolivia, Colquechaca Silver Mine..78, 100
Bolivia, Railroads..... 81
Bolivia, Tin..... 347
Bolland, S., *Dictionary of Foundry Terms*..... 603
Bolland, S., *Iron Founder Supplement*..... 2, 267
Bolthoff's Pat. Mortar for Stamp Mills..... 251
Bombrite, New Explosive..... 123
Bonair Mg Co., Colo.....158, 493, 613
Bonanza Mine, Cal..... 157
Bonanza Mine, Ore.....160, 543, 567
Bonanza Mine, Wyo..... 352
Bonehill's Pat. Smelting Furnace..... 227
Bonehill's Pat. Refining Furnace..... 419
Bonnybel Mg. Co., Colo..... 477
Bookkeeping at a Glance..... 26
Boomerang Mine, Cal..... 517
Boom Town Litigation 367
Bootanic Creek Gold Mg. Co, B. C.. 232
Borden Coal Mg. Co., Md..... 374
Boreel Mg. Co, Colo.....203, 323, 419, 508
Bore-hole, Deepest..... 489
Boring, Deep..... 81
Borneo, Coal Mines..... 155
Bosney Iron Co., Va..... 184
Boss, C. M., *Report of Inspector of Mines, Michigan*..... 75
Bostelmann, L. F..... 300
Boston-Baxter Mg. Co., Colo.....301, 326
Boston Bridge Works..... 539
Boston Coal Market..... Weekly
Boston & Colorado Smelting Co., 285, 398, 472, 593, 597
Boston Mg. Stock Market..... Weekly
Boston Mining Stock Market in 1893.. 129
Boston Mg. Stock Quotations....Weekly
Boston & Montana Mg., Co., 87, 261 266, 268, 272, 423, 472, 477, 566
Boston Society Civil Engineers, 108, 252, 348, 444
Boulder Mg. Co., Idaho..... 565
Boundary Creek District. Wash..... 592
Bowie, Globe & Northwestern R. R., Ari..... 205
Bow's Pat. Furnace..... 514
Box Creek Placers, Mont..... 447
Boyce Firing Apparatus Co..... 612
Boyce's Pat. Boiler 466
Boyd, C. R., Coalfields west of Pocahontas..... 196
Bozeman Mine, Mont..... 374
Bradbury s Pat. Sulphuric Acid Concentrator..... 155
Braden, E. B 593
Braden, Wm 593
Braddock Wire Works..... 253
Bradley's Pat., Finishing Metal..... 275
Brady's Bend Iron Co..... 157
Braidwood, Andrew..... 396
Brand's Pat. Boiler..... 490
Brandt's Pat. Metal Cutter..... 490
Braschi, V. M., Subsidiary Coinage.. 220
Brazing, Hill's Pat 347
*Breuer-Schumacher Forging Press.. 293
Brick Drier, Batron's Pat..... 155
Brick Drying Tunnel, Starkey's Pat.. 131
Brick Kiln, Conley's Pat 83
Brick Kiln, Firestone's Pat..... 419
Brick Kiln, Forrester's Pat..... 35
Brick Kiln, Green's Pat.....155, 179
Brick Kiln, Krahe's Pat..... 466
Brick Kiln, Morrison's Pat..... 83
Brick Kiln, Noyes' Pat..... 131
Brick Kiln, Phares' Pat..... 371
Brick Kiln, Polivka's Pat..... 466
Brick Machine, Keller's Pat..... 155
Brick Machine, Kulage's Pat..... 275
Brick Machine, Pace's Pat..... 490
Brick Machine, Rankin's Pat..... 466
Brick Manufacture, Coxe's Pat..... 610
Brick Pavements..... 531
Bricks, Ingham's Pat..... 395
Bridge, Concrete..... 610
Bridge, Harper's Ferry..... 298
Bridge, Hudson River.....559, 607
Bridge, New Orleans.....116, 195
Bridgework, Steel for..... 561
Brier Hill Iron and Coal Co., Ohio 85, 112
Brierly, J. T., *Bookkeeping at a Glance*..... 26
Bright Diamond Mine, Colo..... 181
Brilliant Extended Mg. Co., Queensland..... 185
Briquette Factory, Blanzy Collieries, France..... 34
Briquettes, Belgium..... 509
*Bristol Co., Steel Belt Lacing..... 371
Bristol's Mfg. Co..... 109
Bristol's Pat. Pressure Gauge..... 155
British Bimetallic League..... 212
British Coal Exports.....11, 101
British Columbia, Double Money Standard..... 164
British Columbia Mining..... 440
British Columbia Mining Laws...305, 471
British Iron and Steel Trade.....105, 290
British View of American Coal Exports..... 339
Britomarte Claim, B. C..... 305
Britton's Pat. Tri-plating Machine... 395
Broken Hill Proprietary Co., N. S. W. 184, 292, 496
*Brooklyn Bridge Terminals..361, 387, 411
Brooklyn Library Report..... 484
Brooklyn Polytechnic Institute..... 84
Brooks, J. G., *Compulsory Insurance in Germany*..... 291
Brooks Locomotive Works..... 539
Brotherhood's Pat. Air Compressor.. 203
Brown, H..... 84
*Brown Horseshoe Furnace..... 441
Brown, H. Y. L., *South Australian Minerals*..... 531
Brobst Suit, Anthracite Lands..... 519
Brown's Pat. Drill..... 323
Browne's Pat. Electrolysis of Salt.... 347
Brown's Pat. Furnace..... 203
Brown's Pat. Mine Pump..... 490
Brown's Pat. Pyrometer 562
Brown's Pat. Roasting Furnace..... 466
*Brown, R. G., Fire Doors for Mine Shafts..... 321
Brown, W. C..... 491
Brownsville Mine, Idaho 38
Brownsville Slate Co., Me..... 469
Brucek's Pat. Miners' Lamp..... 203
Brunck's Pat. Coke Oven.....265, 347
Brunner, J. P., & Co., Chemical Market Report..... Weekly
Brunson Mine, N. C..... 304
Brunswick Antimony Co., N. B..... 544
Brunswick Con. Gold Mg. Co., Cal.. 21, 165, 501
Browning, C. F 563
Breece Hill, Colo 37, 446
Bucherer, A. H., Reduction of Aluminum..... 315
Buckeye State Quarry, Vt..... 400
Buck Mt. Coal Vein, Pa.....39, 280
Buell Sand Extraction Plant, Ore.... 102
Buena Vista Mine, Colo..... 229
Buerkle's Pat. Air Compressor..... 179
Buffalo Bone Phosphate Co., Fla..301, 421
Buffalo Coal Market..... Weekly
Buffalo, Coal Trade in 1893..... 124
Buffalo Forge Co..... 109
Buffalo & Indiana Oil Co..... 494
Buffalo Iron Market..... Weekly
Buffalo Merchants' Exchange..... 267
Buffalo Mine, Idaho..... .....589, 613
Buffalo Mine, Mont..... 374
Buffalo Mg. Co., Mich..... .....135, 278
Buhl, C. H..... 84
Bulgaria, Coinage..... 379
Bulgaria, Mining..... 106
Bull-Domingo Mg. Co., Colo..... 14
Bull of the Woods, N. M..... 495
Bullion-Beck & Champion Mg. Co., Utah..... .....40, 208, 256, 400, 448, 615
Bullion Mg. Co., Nev..... .....207, 423
Bullion Mg. Co, S. Dak..... 16
Bullion Mg. Co., Utah..... 508
Bullionville District, Nev..... 106
Bulwer Con. Mg. Co., Cal.157, 229, 254, 301, 325, 333, 373, 398, 468, 501, 516, 540, 588, 613
Bully Choop Mines, Cal..... 277
Bunker Hill & Sullivan Mg. Co., Idaho, 158, 182, 230, 254, 278, 493, 517, 568, 616
Burke, J. M 491
Burke, M. D., *Brick for Street Pavements*..... 531
Burlington Mine, Colo..... 85
Burma, Coal..... 535
Burma Coal Co..... 424
Burma, Jade Industry..... 201
Burma, Mineral Resources..... 607
Burr Mine, Wyo..... 232
Burro Mine, Idaho..... 593
Burrow, J. C., and Thomas, W., *Mongst Mines and Miners*..... 75
Burton Electric Forging Co..... 491
Burton Electric Heating Co..... 420
Burton & McCormack's Pat. Refining Iron Ores 490
*Bush, E. Renshaw, Sudbury Nickel Region..... 245
Busy Bee Mine, Cal..... 398
Butler Coal Co , Pa..... 93
Butler Mine, Mont..... 327
Butler's Pat. Furnace..... 490
Butte & Basin Mg. Co., Mont.....38, 182
Butte & Boston Mg. Co., Mont..... 566
Butte County, Cal.....37, 277
Butte & Missoula Mg. Co., Mont.... 494
Butte, Mont..... 327
Butte Reduction Works, Mont..... 374
Butterfield's Pat. Furnace for Refractory Ores..... 419
Buzzard Roost Mine, Cal..... 13
Buzzo's Pat. Rock Drill..... 35

C

Cable Carrier, Bliss' Pat..... 299
Cable, New Trans-Atlantic..... 582
Cactus Mg. Co., Utah..... 423
Caddy's Pat. Furnace..... 586
Cæsar Group, S. Dak..... 375
Caethe Mine, Brazil..... 113
Cahall Boiler Tests..... 576
Cain's Pat. Hose Nozzle Support..... 443
Calculation Tables..... 435
Caldwell Mine, Nev 350
Caldwell's Pat. Boiler..... 586
Caledonia Mg. Co., S. Dak.....39, 184
Calhoun's Pat. Hoist..... 107
Calhoun, Tyler, Gravity System of Handling Coal..... 200
California Academy of Sciences..... 36
California Debris Commission, 57, 253, 325, 397, 445
California Gold Output..... 13
California Landslide 275
California Midwinter Exposition..153, 398
California Miners' Association..... 109
California Mg. District, Colo..... 363
California Southern Mines..... 465
Callao Mines, Venezuela.....352, 377, 592
Calliope Mine, Mont..... 566
Calow's Pat. Pit Cages..... 490
Calumet Coal Co., Pa 136
Calumet & Hecla Mg. Co., Mich., 11, 230, 278, 302, 326, 350, 374, 398, 405, 422, 508, 541
Calumet Mine, Mont..... 469
Calumet Mg. Co., Colo.....549, 589
Calvert, A. F., Goldfields of Western Australia 438
Calvert, A.F., *Discovery of Australia* 99
Calvert, A. F., *Mineral Resources of Western Australia*..... 89
Calvert, A. F., *Coolgardie Goldfield* 531, 578
Calvert's Pat. Feed Water Heater... 371
Cambria Iron Co.....61, 253, 539
Cambria & Lillie Iron Mine, Mich.... 255
Cameron & Snape's Pat. Beam Cutter 251
Campbell, Allan..... 276
Campbell, C. A..... 449
Campbell's Pat. Water Elevator 179
Camp Creek, Mont..... 183
Camp Phosphate Co., Fla..... 230
Canada Coal-fields..... 345
Canada, Gold Mining.....558, 582
Canada, Mineral Production..... 419
Canada, Pig Iron Consumption 457
Canada, Shipping..... 347
*Canada, Sudbury Nickel Region..... 245
"Canadian Colliery Guardian"..... 243
Canadian Ice Age..... 75, 99
Canadian Independence, Annexation and British Imperial Federation... 531
Canadian Lake Iron Ore..... 250
Canadian Mining Schools ...241, 252, 291, 339
Canadian Niagara Plant..... 607
Canadian Northwestern Mg. Co., B. C..... 305
Canadian Pacific R. R. Co.....16, 344
Canadian Society Civil Engineers..84, 445
Canadian Tariff, New..... 314
Canals, New York..... 11
Candelaria Mine, Mex..... .. 544
Canisteo Oil and Gas Co., N. Y..... 256
Canonsburg Iron and Steel Co..... 252
Canton Iron Mine, Minn 14, 574, 494
Canyon Creek, Idaho..... 350
Cape Ann Granite Co..... 590
Cape Breton Coal, N. S..... 40
Cape Colony, Exports..... 544
Cape Copper Company, S. Africa.... 592
Capers' Pat. Grinding Mill..... 179
Carbonate District, S. Dak..... 328
Carbonate King Mine, Mont..... 542
Carbonate of Soda, Marcheville, Daguin & Co.'s Pat..... 347
Carbon Coal Co., Ill..... 255
Carbonic Acid Making, Von Berkel's Pat..... 131
Carbonizing, Roberts' Pat..... 11
Carborundum Co.....180, 445
Carbureting Air, Hibes' Pat..... 35
Carbureter, Lambert's Pat..... 323
Carbureter, McCaine's Pat 27
Card & Prosser Coal Co., O 280
Card's Pat. Concentrator..... 490

Caribou District, B. C. 471
Carlin, Thomas' Sons 539
Carlisle Mfg. Co 587
Carlyle, W. A., Canadian Mg. Schools. 291
Carnegie, A., on the Tariff 25
Carnegie Steel Co. 12, 60, 157, 180, 420, 612
Carolina Mg. Co., S. C. 16
Carolina Iron and Investment Co. 543
Carondelet Foundry Co. 554
Carpenter Group, Colo. 565
Carpenter Steel Co. 189
Carrie Furnace 276
Carrier, Delaney's Pat. 251
Carroll, R. W. 539, 587
Carroll's Pat. Sheet Metal Flanger. 466
Carr's Pat. Boiler 83
Carse's Pat. Gas Engine 371
Cars, Mineral, Heron's Pat. 275
Carson River Mg. Co., Cal. 429
Carson River Ranchers 87
Carter's Pat. Intercepting Valve. 107
Carter's Patent Precipitating Gold from Cynide Solution 107
Cary-D'Avignon Mine, Colo. 181
Cary Iron Mine, Wis. 184
Cary & Moore 36
Case & Searge Lead Mines, Mo. 255
Case's Pat. Aluminum Manufacture. 83
Castelnau, M. F., *Mechanical Preparation of Minerals* 195
Cast Iron Coating, Nourse's Pat. 275
Castner Coal and Coke Co., mont 518
Castner & Curran, Nova Scotia Coal 123, 171
Castner's Pat. Electrolytic Apparatus 317, 371
Catalpa Mine, Colo. 141, 613
Cataract Construction Co. 180
Catasauqua Mfg. Co. 611
Catasauqua Rolling Mill 156
Caustic Alkali Process, Syte's Pat. 155
Caustic Soda, Garroway's Pat. 580
Cautz's Pat. Ingot Mold 35
Cave Discoveries, N. S. W. 514
Cement, Dentler's Pat. 35
Cement and Iron 556
Cement Manufacture, Ri.by's Pat. 514
Centennial-Eureka Mg. Co, Utah. 11, 508
Centennial Gravel Gold Mg. Co., Cal. 468
Centennial Mg. Co., Mich. 14, 62, 131, 374, 494, 590
Centerville Block Coal Co., Ia. 255
Central Coal Co., Pa. 597
Central Mine, Cal. 205
Central Mg. Co., Mich 446
Central Railroad of New Jersey. 233, 344, 357
Central Ry. Club 60, 372
Centrifugal Separator, Jourson's Pat. 35
Carstein's Pat. Conveyor 514
Cayley's Pat. Tube Making 514
Chain Machine, Thomson's Pat. 83
Chainman Mine, Nev. 303
Chalandre's Pat. Electrolyzing Apparatus 11
Chamberlain Coal Co., Pa 280
Champion-Empire Mine, Colo. 349, 510
Champion Lode, Colo 589
Champion Mg. Co, Cal., 11, 107, 181, 208, 323, 333, 419, 508
Champion Reef Gold Mg. Co, Indi., 88, 471
Champlain & Phœnix Mine, Utah. 567
Chandler Iron Mine, Minn. 302, 374, 494
Chandler's Pat. Vapor Burner 227
Channing, J. Parke 515
Chanute, O., *Progress in Flying Machines* 435, 459
Chapin Iron Co., Mich. 326, 447
Chaplin's Pat. Pump 586
Chapman's Pat. Explosive 275
Charcoal Kilns, Houston's Pat. 131
Charcoal Mine, Mont 15
Charity Mine, Colo. 510
Charleston Coal Co., W. Va. 352
Charlier's Pat., White Lead 347
Charlton's Pat. Rock Drill 227
Chartiers Valley Gas Co., Pa. 183
Chase's Pat. Water Wheel 586
Chassel Mg. Co., Mont. 327
Chatfield's Pat. Acid Sulphate from Residues 586
Chatwood's Pat. Compound Steel Plate 11
Chattanooga Clay Works 36
Chaumont Lime and Stone Co, N. Y. 160
Chazotte's Pat. Furnace 347
Chazy Marble and Lime Co., N. Y. 208
Chemical Industries, Great Britain. 585
Chemical Industry 337
Chemical Market, Liverpool. Weekly
Chemical Market, New York Weekly
Chemung Mine, Colo 565
Cherokee Iron Mfg. Co., Tex. 280
Cherokee Mg. Co., Ga. 86
Cherry Mines, Pa 113
Chesapeake & Ohio R. R. Co., 137, 520, 521, 616
Chess, Cooke & Co. 60
Chestatee Co., Ga. 254
Chester Pipe and Tube Co. 397
Chester Creek Coal and Coke Co., Pa. 113
Chester Slate Co., Pa 160
Chestnut Coal Mine, Mont. 182
Cheulafinne Gold District, Ala. 397
Chicago Brickmakers 302
Chicago Coal Market Weekly
Chicago Hard Copper Co. 564
Chicago & Georgia Mine, Ga. 326, 350
Chicago Gold Mg. Co., Ore. 423
Chicago Iron Market Weekly
Chicago Iron Works 348
Chicago Markets, Review 7
Chicago Mine, Colo 181
Chicago Mine, N. M 183
Chicago Nickel Co., Ont 40
Chicago Shipbuilding Co 564
Chicago University 180
Chickamain Mg. Co, Mont. 422, 520
Chicken Creek Placers, Ore 543
Childs, George W. 132
Chile, Exports 544
Chile, Mining Exposition 553
Chile, Nitrate Properties 40
Chimbote Nitrate Deposits, Peru. 113
China, Coal Mining 345
China Creek Placers, B. C. 616
Chip Mine, Colo. 398
Chloride Mg. Co., Colo 277
Chlorination of Gold Ores, 5, 32, 80, 277, 339
Chlorination, Modern Practice. 80
Chlorine, Absorbing Worsley's Pat. 611
Chlorine Production, Brand's Pat 466
Choate's Pat. Producing Zinc. 59, 251, 419
Choctaw Coal and Ry. Co., Ind. Ter., 86, 446, 589, 614
Chollar Mg. Co., Nev., 39, 63, 159, 231, 261, 279, 303, 327, 374, 423
Choteau County Placers, Mont. 520
Christie's Pat. Ditch Excavator 610
Chrysolite Mg. Co., Colo 589
Chuncosmayo Gold Placer Co. 453
Church Gold Mg. Co., Cal. 429
Cibuta Placers, Mex. 233
Cincinnati Engineers' Club. 132, 324
Citizens' Coal and Iron Co., Colo. 326
City and Suburban Gold Mg. Co., Transvaal 352
Claggett, J. H. H. 41
Claim, Location 484
Claim, Notice and Record 508
Claims, Marking Boundary 531
Claims, Work on 34
Claire Iron Mine, Mich. 302
Clark, B. N. 276
Clark, Robert Neilson 300
Clarke's Pat. Coal Handling 83
Clark's Pat. Pumping Engine 35
Clarke, W. A. 467
Clarkson's Pat. Sampler 443
*Clarkson's Sampling Machine 513
Claude Mg. Co., N. M. 495
Clay Crusher, Urquhart & Mallory's Pat. 11
Clay Mill, Tiffany's Pat 419
Clays, Determining Fusibility of. 224, 244
Clayton Air Compressor Works 36, 180, 467
Clear Creek County, Colo. 229
Clear Creek Mines, Utah. 543
Clear Creek Placer Co., Colo. 134
Clear Spring Colliery, Pa. 87
Clear Springs Phosphate Co., Fla. 616
Clearwater Placers, Idaho 469
Cleland, E. D. 180
Clement, V. M. 204
Cleopatra Mg. Co., S. Dak. 11, 16, 375
Cleveland City Forge and Iron Co. 204, 253, 612
Cleveland Cliffs Iron Co., Mich. 86, 399
Cleveland Engineers' Club. 60, 276, 396
Cleveland Iron Mg. Co., Mich. 203, 541
Cleveland Iron Ore Paint Co. 228
Cleveland, Lorain & Wheeling Ry. Co., O. 63, 447
Cleveland Mines, Idaho 613
Cleveland Mg. and Development Co., Mich. 206, 255, 494
Cleveland Rolling Mill Co. 85, 611
Cliff, Capt. John 204
Clifton Iron Co., Ala. 516
Clinch Valley Coal Co., W. Va. 424
Cline, C. F. 348
Cliff Mine, B. C. 329
Clipper Mine, Cal. 205
Clipper Mine, Mont 469
Clonbrook Boiler Works 612
Clough, A. L., *What an Engineer Should Know About Electricity* 123
Clute's Pat. Boiler Feed 83
Coal, Alabama, Cost 74
Coal, American, in Mexico 251
Coal, Anthracite, in 1893 50
Coal, Belgium 257, 281
Coal, Blount Mt., Ala. 489
Coal, Borneo 155
Coal, Canada 352
Coal, Cheshire, England 35
Coal Chute, Schmadicke's Pat. 419
Coal Chute, Scully's Pat 562
Coal Cleaning, Aultman's Pat. 155
Coal and Coke, Phosphorus in 222
Coal, Colo. 373
Coal Conveyor, Carstem's Pat. 514
*Coal Cutter, Electric 559
Coal Cutter, Greenwood's Pat 587
*Coal Drill, Bittenbender's 446, 557
Coal Drill, Hardscog's Pat. 107
*Coal Drill, Jeffrey Electric 536
Coal Drill, Mayer's Pat. 275
Coal Drill, Shallenberger's Pat. 419
Coal, Duty on 89
Coal Dust Explosions, English Mines. 273
Coal Dust Firing, Wegener's Pat. 490
Coal Exports, British 11, 101
Coal Exports, U. S 27
Coal-field, Heraklea, Turkey 319
Coal-fields, Canada 345
Coal-fields, Mexico 535
Coal-fields, New, Great Britain. 161
Coal, France 272, 292
Coal, Germany 88, 247, 281
Coal, Great Britain 305, 329, 368
Coal Handling Bucket, Curtis & Isaacs' Pat. 203
Coal Handling, Clarke's Pat 83
Coal Handling, Gravity System 200
Coal, Holland 347
Coal, Hungary 305
Coal, India 335
Coal, Japan 31
Coal Leases, Rights of Lessees 443
Coal Market, Boston Weekly
Coal Market, Buffalo Weekly
Coal Market, Chicago Weekly
Coal Market Review, Chicago 7
Coal Market, New York Weekly
Coal Market, Pittsburg Weekly
Coal Market Review, Pittsburg 8
* Coal Measures, Iowa. 269, 295, 317, 485
Coal Measures, Missouri 339
* Coal Measures, Wise County, Va. 605
Coal Mine Inspectors Reports, Pa 243
Coal Miners, Alabama 337, 568
Coal Miners' Convention 16
Coal Miners, Illinois 230
Coal Miners, Indiana 230, 614
Coal Miners, Iowa 589, 590
Coal Miners, Kansas 590
Coal Miners Ohio. 232, 256
Coal Miners, Pennsylvania, 281, 304, 328, 375, 579, 615
Coal Miners' Strikes. 16, 313, 353, 372, 385, 397, 457, 473, 482, 497, 517, 529, 601
Coal Miners' Strike, Great Britain. 113, 169
Coal Miners' Time, Great Britain. 466
Coal Miners' Wages, Mo. 207
Coal Miners, W. Va. 232, 256, 448
Coal Mines, Missouri 177
Coal Mines, Roburite in 463
Coal Mine Slack, Unguarded 371
Coal Mining, China 345
Coal Mining Machine, Scott's Pat. 35
Coal Mining, Principles of 27
Coal Mining, Text Book 315
Coal, Missouri 255
Coal, North Carolina 327
Coal, North Dakota 304
Coal, Nova Scotia. 97, 122, 123, 171, 472, 544
Coal, Ohio 265, 289, 304
Coal, Oregon 304
Coal, Origin of 3, 27, 148
Coal, Pennsylvania 289
Coal Production, U. S. 147, 218, 243
Coal, Queensland 270
Coal Rates, Kentucky 209
Coal, Roumania 514
Coal, San Francisco 353
Coal Separator, Haring's Pat. 538
Coal, Spain 227
Coal Statistics 219
Coal Statistics, Misleading 314, 409
Coal Stock Prices Weekly
Coal Supply, Europe 535
Coal, Texas 304, 328
Coal Trade, American Export 339
Coal Trade, Buffalo 124
Coal Trade Club 419
Coal, Washington 280, 496
Coal, West Virginia 280
Coaling, Cheap, Nova Scotia 291
Coalville Coal Mines, Utah 113
Cobb, W. H. M. 467
Cobb's Pat. Lead Press 251
Cochiti District, N. M., 399, 519, 543, 567, 591
Cockerill Co., Seraing, Belgium 323
Cœur d'Alene Mines 553
Cœur d'Alene Silver Lead Mg. Co., Idaho 11, 493
Coffin's Pat. Electric Welding, 59, 227, 347, 514
Cohen, Hartwig A. 444
Coinage, Proposed Reforms 76
Coinage, Subsidiary 220
Coining the Seignorage 266, 289, 337
Coins, Domestic and Foreign Values, Weekly
Coins, Nickel 147
Coins, Testing, U. S. Mint 179
Coke Making, Hewitt's Pat. 11
Coke Oven, Bauer's Pat. 107
Coke Oven, Brunck's Pat. 275, 347
*Coke Oven, Strachan 34, 154
Coking Peat, Sweden 512
Colar Goldfield, India 169, 495, 592
Colby Iron Mine, Mich. 422, 518
Cole, A. 108
Cole's Pat. Hydrocarbon Burner 25
Colfax Coal Co., Ill. 62
Collieries, South Africa 561
Colliery Managers' Handbook 99
Collins, J. H., Principles of Coal Mining 27
Collins Mine, Colo 134
Collins' Pat. Transferring Earth, etc. 83
Collins' Pat. Crusher 466
Colombia Gold Mines 471
Colombia, Gold and Silver 544
Colombia, Marble 323
Colombia, Mining 616
Colonial Office List 363
Colorado Camp, Cal. 325
Colorado Central Mg. Co. 11
Colorado Coal 13
Colorado Coal and Iron Development Co. 285
Colorado Fuel Co. 11
Colorado Fuel and Iron Co., 13, 181, 189, 205
Colorado Gold Reduction Co. 229, 529
Colorado Iron Industry 98
Colorado Legislature 25
Colorado Mineral Surveys. Weekly
Colorado Mining Stock Exchange, 357, 472
Colorado—Ruined State 2
Colorado Scientific Soc. 156, 180, 444, 539
Colorado Smelter, Butte, Mont. 422
Colorado Springs, Lawsuits 229
Colorado Springs Mg. Stocks 21, 45
Colorado Springs Stock Quotations, Weekly
Colquechaca Silver Mines, Bolivia, 78, 100
Colquhoun, J., Granulating Slag and Matte 147
Colton, D. J. 204
Columbia College School of Mines, 36, 435
Columbia County Clays, Ark. 301
Columbia Gold Mg. Co, Ari. 349
Columbia Mine, Colo. 517, 541
Columbia Mine, Ore. 49, 592
Columbia Mine, S. Dakota. 351
Columbia Mg. Co., N. C. 303
Columbia Wire Co 564
Columbian Exposition, Missouri Minerals 28, 55
Columbian Tunnel Co., Colo 613
Columbus Colliery, Pa 328
Columbus & Hocking Valley Coal Co., O. 453
Columbus, Hocking Valley & Toledo R. R. Co. 525
Columbus Mg. Co., Colo. 493
Comanche Mine, Mont. 542
Comet Mine, Alaska 181
Commercial Mg. Co., Colo. 158, 398, 493
Commonwealth Iron Co., Mich 614
Compressor Air, Trump & Sweet's Pat. 371
Comstock Mill and Mg. Co., Nev. 327
Comstock Mine, Mont. 542
Comstock Mines, Men at Work 39
Comstock Mines Payroll, Nev. 159
Comstock Mines Report. Weekly
Comstock Mg. Co., Colo. 493
Comstock, Prof. Theo. B., Notes on Arizona Mines 103
Comstock, Prof. Theodore B. 252, 611
Comstock Tunnel Co., Nev. 231, 425, 591
Concentrator, Beely's Pat. 466
Concentrator Belt, Summerhayes' Pat 107
Concentrator, Curd's Pat. 490
Concentrator, Davidson's Pat. 83
* Concentrating Jig Plunger. 607
Concentrating Jigs, Abeling's Pat. 514
* Concentrating Machinery, German. 465
Concentration, Close Sizing before Jigging 153
Concord Mine, N. C. 87
Concord Quarry Co., Tenn. 232
Concrete Bridge 610
Concrete Block, Storek's Pat. 35
Concrete Construction, Ransome's Pat 251
Concrete Mg. Co., Colo 85
Concrete Molding, Rau's Pat. 371
Condor Mine, Nev. 111, 567
Condor Mine, Wash. 496
Congress Mine, Ari. 133, 397
Conkling, C. C. 252
Conley's Pat. Brick Kiln 83
Conlon Gold Mg. Co., Cal. 549
Connellsville Gas Coal Co., Pa. 208
Connersville Blower Co. 516
Connor Creek Mg. Co, Ore. 495
Con. Amador Hydraulic Mg. Co., Cal. 405
Con. California & Virginia Mg. Co., Nev., 15, 39, 63, 87, 159, 183, 231, 256, 279, 327, 398, 423, 447, 470, 495, 518, 567, 591
Con. Imperial Mg. Co., Nev. 405
Consolidated Iron Mines, Minn., 14, 350, 399
Con. Lehigh Slate Co., Pa 232
Con. Mg. Co., Va 448
Con. New York Mg. Co., Nev. 11
Con. Night Hawk & Nightingale Mg Co., Colo. 549
Con. Wyoming Mg. Co., Cal. 492
Consolidated Coal Co., Md., 69, 141, 165, 176
Constructor, The 215
Contracts, Construction of. 179, 251
Converse, E. W 36
Converter, Traubmann's Pat. 35
Conveyor, Franklin's Pat. 299
Conveyor, Hassell's Pat. 131
Conveyor, Howell's Pat 371
*Conveyor, Jeffrey Cable 178
Conveyor, McMahon's Pat. 131
Conveyor, Miller's Pat. 59
Conveyor, Patterson's Pat. 107
Conway's Pat. Furnace 514
Cook's Inlet Placers, Alaska. 325
Cook's Peak Mg. Co., N. M. 15
Cook's Pat., Fuel Feeding 251
Coolgardie Goldfield, W. Aus. 165, 531, 578
Coosaw Mg. Co., S. C. 16, 616
Copper, American, for Ocean Cables. 179
Copper Bell Mine, Mont. 182, 614
Copper Cliff Mine, Ont. 40, 376
Copper Exports Weekly
Copper Extraction, Goetz's Pat. 443
Copper Group, B. C. 328
Copper Head Mg. Co., Colo. 189
Copper, Mexico 544
Copper Mines, Clay County, Ala. 516
Copper Mines, Ontario 76
Copper Mines, Singhboom, India. 345
Copper Mt. Gold Mg. Co., Colo. 613
Copper Mt. Mg. Co., Utah. 40, 423
Copper Prices Weekly
Copper Production, U. S. 73, 193
Copper Queen Mg. Co., Ari. 11, 117, 141, 181, 203, 323, 419, 508
Copper Refining, Bull's Pat. 538
Copper Rock District, Colo. 37
*Copper Smelting Furnaces, Vicuna's Pat. 490, 533
Copper Smelting, Japan. 367
Copper-Zinc-Aluminium Alloy, Sugg's Pat. 562
Copperopolis, Utah. 567
Copsis Mg. Co., Nev. 15
Cordite Case in England 202
Corliss Steam Engine Co. 516
Cornell University 60, 108
Cornucopia Mine, Mont. 159, 469
Cornwall Iron Mine, Pa. 304
Coronet Steel Co. 276
Corona Coal Mines, Ala. 109
Corporation, Dissolution 83
Corporation, Liability for Manager 275
Corralito Mg. Co., Mex. 400
Corrigan, McKinney & Co 564
Corundum, Ga. 86
Cortez Mg. Co., Nev. 11
Cotheal, Alexander I. 204
Coulterville District, Cal. 540
Cowan, J. T. 84
Cowenhoven Tunnel, Colo. 158, 181, 469
Cowper-Coles' Pat. Casting Metals. 35
Coxe Brothers & Co., Pa. 423
Coxe, Eckley B. 36, 276
Coxe's Pat., Brick Making 610
Coxe's Pat. Furnace 347, 395
Cox's Pat. Thermo-Electric Generator 395
Cox Phosphate Property, Fla. 616
Coyle's Pat. Excavating System 395
Cranberry Iron Co., N. C. 208
Crane Iron Co. 234
Crane, Matton's Pat. 299
Crane, Zastrow's Pat. 155
Craney's Pat. Electrolytic Cell. 514
*Crank-pin Oiler, Powell's 395
Crawford, John S., Sierra County, New Mexico 24
Creede Mining Suits, Colo. 494
Creede Production, Colo. 63
Creede Quintette Mg. Co., Colo. 511
Creed's Pat. Earth Drill 157
Creighton Mg. Co., Ga. 35
Creiler, Engine 158
Crescent Mg. Co 146
Crescent Steel Co. 56

Crescent Valley, Cal..... 589
Cressori's Pat. Mine Props..... 39
Crested Butte, Colo..... 225
Cripple Creek, Colo., Gold.....30, 472
Cripple Creek Miners, Colo.....85, 277, 497, 540
Cripple Creek Ores, Gold in..... 271
Cripple Creek Railroads, Colo..... 110
Cripple Creek Wildcats..... 458
Croesus-Hope Group, Idaho..... 373
Croesus Mine, Cal..... 205
Crook County Coal Mine, Wyo..... 352
Croll, H. V..... 467
Cross Creek Coal Co., Pa..... 232
Crown Point Mg. Co., Nev. 15, 39, 63, 87, 111, 159, 163, 183, 207, 231, 279, 303, 350, 374, 399, 447, 470, 518, 542, 567, 591
Crown Point Mine, N. M..... 327
Crown Reef Gold Mg. Co., Transvaal 376, 472
Crucibles, Plumbago, Digby's Pat.... 83
Crucibles, Valerin's Pat..... 203
Crusher, Bishop's Pat..... 443
Crusher, Collins' Pat..... 466
Crusher, Kent's Pat..... 107
Crusher, Sly's Pat..... 155
Crushing Mill, Morel & Hempel's Pat..... 514
Crushing Mill, Pamp ilion's Pat..... 107
Culp Copper Mine, Ark..... 181
Cumberland Iron Works..... 60
Cumberland, Md., Coal Miners... 278, 447
Cumberland Mines, Idaho..... 493
Cummer, F. D., & Son Co..... 85
Cunninghame's Pat., Recovering Cyanides..... 562
Cupola, Bird's Pat..... 11
Cupola Furnace, Blakeney's Pat..... 395
Cupola Furnace, Bradley's Pat..... 299
Curley's Pat. Gas Apparatus..... 371
Curran Mine, Colo..... 37
Cu rency, Report of Comptroller..... 75
Current Prices, Chemicals..... Weekly
Curtis, Col. S. T..... 396
Curtis & Isaacs' Pat. Coal Handling Bucket..... 203
Curry's Pat. Furnace..... 203
Cyanide from Blast Furnace Gases, Aitken's Pat..... 443
Cyanide Process..... 533
Cyanide Process, Cripple Creek, Colo. 267
Cyanide Process, Deep Down Mine, N. M..... 217, 220
Cyanide Process, New..... 562
Cyanide Process, S. Australia..... 49
Cyanide Process, Tests..... 268
Cyanide Production, Sieperman's Pat..... 131
Cyanide Recovery, Cunninghame's Pat..... 562
Cyanide Patents, MacArthur-Forrest 25
Cyanide Patent Suits, Transvaal..... 433
Czarina Mine, Mont..... 279

D

Dalton Gold Mg. Co, Utah..... 592
Dalton's Pat. Excavator..... 562
Daly Mg. Co., Utah..... 11
Dalzell, J. H..... 515
Dana's *Financial Review*..... 123, 267
Dana, Prof. James Dwight.....505, 515
Dancy, F. B..... 60
D'Andira's Pat. Red Oxide Paint, 131, 155
Dandy Jim Mine, Mont..... 542
Daniels Steel Tie Co..... 396, 467
Dannenhauer, C. H..... 348
Danube River Improvement..... 457
Danver Mine Cal..... 157
Darien Gold Mg. Co., Colombia..... 33
Dark's Pat. Furnace..... 443
Darling & Forrest's Pat. Nitric Acid Production..... 562
Darling's Pat., Metals from Nitrates. 299
Darton, N. H., Artesian Waters of Virginia, etc..... 196
*Dauber Gas Producer..... 439
Davenport, D. E..... 563
Davidson Mine, Ore..... 592
Davidson's Pat. Concentrator..... 83
Davids' Pat. Furnace Combustion.. 466
Davies & Thomas..... 12
Davies, E. H., *Machinery for Metalliferous Mines*..... 75, 99
Davies' Pat. Mine Cages..... 371
Davis, David..... 12
Davis' Pat. Ore Roaster..... 538
Davis' Pat. Pump Regulator..... 586
Davis' Pat. Reducing Valve..... 371
Davis' Pat. Separator..... 317
Davis, S. H..... 36
Davis Sulphur Ore Co., Mass.....239, 255
Dawson, Sir J. Wm..... 60
Dawson, Sir J. Wm., *Canadian Ice Age*..... 75, 99
Dawson, Sir J. Wm., *Science of the Earth*..... 195
Daw's Pat. Drill..... 59, 490
Day, David T., *Mineral Resources of the U. S.*..... 75
Day's Pat. Drilling Machine..... 347
Day's Pat. Rolling Mill Guide..... 179
Dayton Coal and Iron Co., Tenn..... 64
Dead Horse Mine..... 613
Deadwood & Delaware Smelter, S Dak.....16, 39, 64, 423, 513, 592
Deane Steam Pump Co..... 563
Deanefield Coal Mine, Ky..... 398
De Beers Con. Mg. Co. S. Africa, 40, 281, 495
Decatur Coal Co..... 21, 134
Deeds of Mineral Rights..... 322
Deep Down Mine, N. M., 207, 351, 513, 615
Deep Down Mine, N. M., Cyanide Process at..... 217, 220
Deep Vein Coal Co., Ia..... 86
Deer Creek Mg. Co., Cal..... 257
Deffero Mine, Colo..... 398
De Kaap Annual..... 170
De Kaap District, Transvaal..... 281
Delage's Pat. Amalgamator..... 553
De Lamar Mg. Co., Idaho. 11, 45, 62, 69, 107, 203, 254, 278, 374, 398, 495, 419, 446, 457, 472, 493, 508, 565, 589, 615
Delancy's Pat. Carrier..... 251
*De Laval's Method Electric Smelting..... 509
Delaware & Hudson Canal Co., 213, 305, 333, 429 449
Delaware, Lackawanna & We tern R. R. Co 104, 165, 183, 333, 621
Delaware Rolling Mill..... 156
Delaware, Susquehanna & Schuylkill R. R..... 353, 543, 589
Delhi Mg. Co., Cal..... 189, 227
Del Mar's Statement, Precious Metal Production..... 147
Del Monte Mg. Co., Nev..... 111
Dentler's Pat. Cement Manufacture. 35
Denton, Prof. F. W..... 587
Denver & Western R. R. Co, Colo... 589
Denver Kaolin Co., Colo..... 158
Denver Mine, Idaho..... 613
Denver Mg. Exchange.....501, 573
Denver Mint..... 529, 540
Denver Stock Quotations..... Weekly
Denver Summit Gold Mine, Alaska... 597
Des Moines Coal Mines, Ia.....86, 111
Dessau, Simon..... 132
Detroit Foundry Equipment Co..... 539
Dewey, E. H..... 84
DeWolf, S., Amy-Silversmith Case.. 315
Dexter Mg. Co., Nev..... 11
Diamond & Excelsior, Nev..... 15
Diamond Mine, Nev..... 207
Diamond Mg. Co., Nev..... 279
Diamond Placer, Mont..... 591
Diamonds, American..... 55
Diamonds and Gold in S. Africa..363, 603
Diamond Steel Co..... 253
Dick, Alexander..... 348
Dicken's Pat. Air Pump..... 179
Dickerman, A. L..... 515
Dickman, R. N..... 300
Dick Willoughby Group, Alaska..... 540
Dictionary, Standard, Funk's..... 99
Diebetsch, Emil..... 587
Dietz's Pat. Boiler..... 275
Digby's Pat. Plumbago Crucibles.... 83
Dios Me Ampare, Mex..... 233
Dirt Loader, Younger's Pat..... 490
Disintegrator, Stedman's Pat..... 371
Distilling Flask, Edwards' Pat..... 610
Divelbiss Mine, Ore..... 543
Dividends, Silver Mine..... 99
Dixon, Joseph, Crucible Co..228, 372, 539
Dodge City Placer Mg. Co., Wyo.... 495
Dodson Coal Co., Pa..... 328
Doerflinger's Pat. Ore Separator..... 371
Dolly Varden Mine, Ore.....423, 495
Dombrowa Colliery, Russia..... 64
Dominion Coal Co., N. S 177, 184, 573, 592
Dominion Mineral Co., Ont..... 401
Dominion Mine, Idaho..... 254
Donaghmore Furnace..... 12
Donald's Pat. Chlorine Making..... 595
Don Enrique Mg. Co.....333, 576
Dora Mine, Dal..... 110
Dos Cabezas Camp, Ariz..... 468
Double Standard Mg Co., Colo..... 589
Douglas Con Mg. Co. Wyo..... 424
Douglas, James, *Canadian Independence, Annexation and Imperial Federation*..... 531
Dorr's Pat., Extracting Gold from Black Sand..... 443
Drainage, Measuring..... 249
Drake's Pat. Electrolysis of Salt..... 610
Draper, T. W. M..... 300
Drawbacks on Coal for Vessels..... 569
Drawbridge, Double..... 586
Dredge, Bates' Pat..... 610
Dredge, Braem's Pat..... 347
Dredge Bucket, Bennett's Pat..... 299
Dredge Bucket, Robinson's Pat..... 466
Dredge Bucket, Symonds' Pat..... 179
Dredge-Foot, Woods' Pat..... 35
Dredge, Gullman's Pat..... 251
Dredge, Hunt's Pat..... 83
Dredge, Titcomb's Pat..... 203, 227, 251
Drexel Tunnel, Colo..... 134
*Drill, Coal, Bittenbender's..... 557
Drill, Creed's Pat..... 155
Drilling Machine, Day's Pat..... 347
Drill Jar, Phillips' Pat..... 35
*Drill, Jeffrey Electric..... 536
Drills, Daw's Pat..... 59
Drills, Bennett's Pat..... 371
Drills, Charlton's Pat..... 227
Drills, Larmuth & Howarth's Pat.. 515
Drill, Smith's Pat..... 538
Drill Tripod, Douglass' Pat..... 35
Drill, Trounson's Pat..... 299
Drill, Warner's Pat..... 35
Drill, Wyman's Pat..... 443
Drop Hammer, Merrill's Pat..... 251
*Druge, J., Water Injection in Rock Drilling..... 322
Drum-Lummon Mine, Mont..... 327
Dubois District, Colo..... 492
Du Bousquet, P..... 324
Ducktown Sulphur, Copper and Iron Co., Tenn.....16, 281
Dudley's Pat. Testing Machine..... 371
Duff's Pat. Gas Producer..... 323
Duluth & Iron Range.....159, 374, 593, 614
Duluth Barytes Co., Minn..... 541
Duluth Mine, Minn..... 494
Duluth Mine, Ont..... 376
Duluth Stock Quotations..... Weekly
Dump Car, Pone's Pat..... 179
Dump Car, Williams' Pat..... 179
Duncan Camp, Colo..... 61
Dunderberg Mine, Colo..... 134
Dunellon Phosphate Co., Fla..... 230
Dunkin Mine, Colo.....301, 421
Dunn Mg. Co., Minn..... 541
Dunn, Thomas H..... 324
Dunn, T. R..... 108
Durz's Pat. Natural Gas Furnace.... 155
Duquesne Forge Co.....180, 612
Duquesne Tube Works..... 516
Durant Mine, Colo..... 181
Durban-Roodepoort Gold Mg. Co., Transvaal.....352, 370, 616
Durham & Northumberland Coal Sales Ass'n, England..... 257
Duryea Mine, Cal..... 398
Dust Chamber, Iles & Chanute's Pat. 203
Dust Collector, Gale's Pat..... 275
Dvorkovitz's Pat. Gas Manuf....83, 347
Dynamite Mine, Idaho..... 278
Dynamo and Motor Building for Amateurs.....123, 147

E

Eagle Bird Mine, Cal..... 468
Eagle Canyon, Colo..... 301
Eagle Creek Placers, Ore..... 543
Eagle Hill Mg. Co., Mont..... 614
Eagle Iron Co, Wis..... 232
Eagle Creek Placers, Ore..... 519
Eagle Mt. Placer, Cal..... 229
Eagle Quarry Co., Me..... 159
Eames, Richard, Jr..... 60
Early Bird Phosphate Co., Fla..... 421
Early Rose Mine, Colo..... 446
Earth's Central Heat, Utilizing..... 436
Earth, Science of..... 195
Easby, John W..... 587
East Broad Top R. R. and Coal Co, Pa..... 39
East Sierra Nevada Mg. Co., Nev.. 495
East Lebanon Rolling Mill..... 12
East Sierra Mg. Co., Cal..... 453
East Tennessee Land Co..... 568
East Tennessee, Virginia & Georgia R. R..... 348
Eastern Oil Co., Ind..... 255
Eastern Oregon Mg. Co..... 135
Easton, Anderson & Goolden..... 180
Easton Mine, Mont..... 182
Eaton Mine, Mont..... 350, 614
Eaton, S. C..... 156
Eaton, Wm. S..... 156
Ebert Mine, Colo..... 540
Ebervale Tunnel, Pa..... 615
Eckel's Pat. Metal Seamer..... 35
Eckley Colliery, Pa..... 495
Eclipse Mg. Co., N. J..... 591
Eckert, H. S..... 56
Ede, Prof. J. A., Wellston Coal District, Ohio..... 126
Eder, Henry J..... 611
Edison's Pat. Mixing Method..... 107
Edgar's Pat. Molding Machine..... 347
Edgar Thomson Steel Works..109, 372, 522
Edna Mine, Idaho.....613, 589
Edson, Jarvis B..... 132
Education, Report of U. S. Commissioner..... 484
Edwards' Pat. Distilling Flask..... 610
Edwards' Pat. Oil Atomizer..... 35
Egan, John F..... 396
Ehrhard, H. P..... 156
Elbers, A. D., Smelting Reactions of Blast Furnace Slag..... 297
Elbers, A. D., Uses of Blast Furnace Slag..... 392
Eldorado Canyon Mill, Nev..... 135
Electric Carriage, French..... 203
* Electric Coal Cutter..... 559
* Electric Coal Drill, Jeffrey..... 536
Electric Communication with Lighthouses..... 395
Electric Forging Co..... 396
Electric Traction, Japan..... 31
*Electric Furnace, Thomson's. 79, 131. 151
Electric Furnace, Urbanitzky's Pat.. 227
Electric Fuse, Brain's Pat..... 610
Electric Fusion of Steel, Thwaite's Pat..... 395
*Electric Haulage, Bear Run Mine, Pa..... 343
*Electric Hauling, Brock Colliery, Pa. 57
Electric Heat in the Chemical Industries..... 533
Electric Lighting, Manchester Canal. 462
Electric Locomotive, Heilman..... 489
Electric Metal Separation, Kellner's Pat..... 347
Electric Metal Working, Lemp & Moody's Pat.....251, 275
Electric Miners' Lamp, Magary's Pat. 35
Electric Miners' Lamps, Tuckerman's Pat..... 203
*Electric Mining Plant Engines..... 465
*Electric Mining Plant, Westinghouse..... 33
*Electric Plants, Indicator..... 165
Electric Power from Windmills..... 155
Electric Pickling Vats, Smith's Pat.. 443
Electric Refining Metals, Randolph's Pat..... 155
*Elec ric Smelting, De Laval's Pat... 509
Electric Smelting Furnace, Niewerth's Pat..... 83
Electric Smelting, Iron Ore....442, 529, 536
Electric Smelting, Taussig's Pat..... 251
Electric Station, Tivoli, Italy..... 485
Electric Welding, Coffin's Pat., 11, 59, 227, 275, 347, 514
Electric Welding, Hunter's Pat..... 514
Electric Welding, Lemp's Pat..... 466
Electrical Ass'n, Waterbury, Conn.. 516
*Electrical Apparatus, Experimental 608
Electrical Mine, Betilini's Pat..... 107
Electrical Zinc Co..... 588
Electrical Power Distribution..... 581
Electricity, Action on Carbonization of Iron..... 58
Electricity in Metallurgical Work.. 371
Electricity, National School..... 515
Electricity on New York Canals..... 251
Electricity, One Hundred Years Ago and To-day..... 555
Electricity in Switzerland..... 83
Electricity, What an Engineer Should Know..... 123
Electro-Chemical Co.....564, 611
*Electro-Deposition, Thofehrn's Method..... 513
Electrode, Greenwood's Pat..... 155
Electrode, Morrison's Pat..... 59
Electrodeposition of Metals, Thofehrn's Pat..... 466
Electrolysis, Blumenberg's Pat. 466
Electrolysis of Fused Salts..... 559
Electrolysis, Lyte's Pat..... 347, 456
Electrolysis, Parker's Pat..... 155
Electrolysis, Placet's Pat..... 466
Electrolysis of Salt, Drake's Pat..... 610
Electrolysis of Salt, Kellner's Pat..... 83
Electrolytic Apparatus, Andreoli's Pat..... 59
Electrolytic Apparatus, Hoepfner's Pat..... 371
Electrolytic Apparatus, Castner's Pat..... 371, 347
Electrolytic Cell, Craney's Pat..... 514
Electrolytic Cell, Le Sueur's Pat. 179, 371
Electrolytic Cell, Vautin's Pat..... 131
Electrolytic Cells, Richardson's Pat. 562
Electrolytic Estimations..... 203
Electrolytic Metal Refining, Hoepfner's Pat..... 610
Electrolytic Metal Treatment, Vautin's Pat..... 203
Electrolytic Nickel-Copper Separation, Ricketts' Pat..... 155
Electrolytic Poles, Liveing's Pat..... 83
Electrolytic Process, Vautin's..... 345
Electrolytic Soda, Craney's Pat..... 562
Electrolytic Soda, Hargreaves' Pat.. 347
Electrolytic Soda, Kellner's Pat..... 35
Electrolyzing Apparatus, Chalandre's Pat..... 11
Electroplating, Ash & Gill's Pat..... 131
Elevator Dump, Walker's Pat..... 347
Elizabethtown Mine, N. M..... 495
Elk Creek District, Mont..... 494
Elkhorn Mg. Co., Mont. 62, 182, 279, 285, 232, 313, 399, 419, 447, 494, 508, 542, 590, 597
Elk River Coal Co., W. Va..... 88, 137
Elkton Mg. Co., Colo. 69, 107, 203, 357 419, 477, 508
Ella C. Mine, Colo..... 493
Ella Furnace..... 491
Ella Helena Mg. Co., Colo..... 517
Ellamalor Mine, Idaho..... 254
Elling & Morris Group, Mont..... 183
Elliott Creek Placers, Cal..... 468
Elliott, Sir George.....25, 372
Elliott's Pat. Pulverizer..... 83
Elmira Mg. Co., Idaho..... 511
Elmwood Colliery, Pa..... 351
El Paso Mg. Exchange, Tex..... 256
Ely, George H..... 108
Embreeville Iron Co., Tenn..... 543
Emigrant Gulch Placers, Mont..... 542
Emma Abbott Mine, Idaho..... 254
Emma Claim, Wash..... 520
Emma G. Mine, Wyo.....257, 424, 592
Emma Mg. Co., Nev..... 93
Emma Mine, Colo..... 158
Emma Mine, Ore..... 615
Emma Mine, S. Dak..... 519
Emmens' Pat. Treatment of Zinc-Lead Ores..... 131
Emmens' Pat. Zinc-Lead Sulphide Treatment..... 347
Emmens, S. H., Photography and Mining Reports..... 27
Emmerton, F. A..... 36
Emmons, S. F. *Geological Guide-Book, Rocky Mountains*..... 603
Emerald Mines, Colombia..... 442
Empire Granite Co., Me..... 590
Employee, Assumption of Risk..... 274
Enamel for Metal, Henneman's Pat.. 347
Encino Mine, Cal..... 540
Ehrlicher's Pat. Boiler, Lagging.... 371
*Engelbach & Bretherton's Smelting Furnace..... 9
Engelhardt, E. C..... 156
"Engineering and Mining Journal"..... 314
"Engineering and Mining Journal" Boycotters..... 122
"Engineering and Mining Journal," Removal..... 361
Engineering Education..... 99
Engineer's Tape Reel, Shedd's Pat.. 275
Engines and Boilers, How to Run, 435, 507
England and the Silver Question, 195, 458
England, Bank of, Gold..... Weekly
England, Bimetallic Conference..... 410
England, Bimetallism....146, 289, 308, 602
England, Coal in Cheshire..... 35
England, Loss of Money in Investments..... 318
English Exchequer..... 49
Ennes' Pat. Blowpipe..... 227
Ensminger's Pat. Ore Car..... 35
Enterprise Boiler Works.....444, 539
Enterprise Mg. Co., Colo..11, 421, 453, 565
Equitable Gold Mg. Co., Colo..... 326
Ericbsen's Pat. Valve..... 155
Erie Canal Traction Co..... 325
Escanaba River Land and Iron Co., Mich..... 230
Escondido District, Cal.....325, 468, 589
Esmeralda Mine, S. Dak..... 351, 470
Esperanza Mine, Mont..... 231
Estella Mine, Mont..... 159
Estes, Stephen A..... 324
Esther Shaft, Colo..... 56
Etherington & Hapgood..... 85
Etherington, W. F..... 12
Etiwan Phosphate Co., S. C..... 568
Etna Furnace Co., Ga..... 422
Eureka District, Nev..... 111
Eureka Hill Mg. Co., Utah.....165, 567
Eureka & Palisade R.R., Nev., 39, 159, 183, 279, 303
Europe, Supply of Coal..... 535
Eyesight of Railroad Employees..... 203
Eva May Mine, Mont.....566, 518
Evans Mine, Ont..... 40
Evans, Superintendent..... 420
Evelyn-Liardet's Pat. Explosive..... 562
Evening Star Mg. Co., Cal.....261, 429
Everett's Pat. Glass Furnace..... 610
Ewing, E. A..... 444
Ewing, J. A., *Steam Engine and Other Heat Engines*..... 531
Excavating System, Coyle's Pat..... 395
*Excavation, Gould System..... 436
Excavator, Christie's Pat..... 610
Excavator, Dalton's Pat..... 562
Excavator, Ole's Pat..... 466
Excelsior Colliery, Pa..... 3 9
Excelsior Furnace, Mich..... 516
Excelsior Granite Co., Vt..... 64
Excelsior Mine, Cal.....254, 398
Excelsior Mine, N. M..... 615
Explosive, Chapman's Pat..... 275
Explosive, Evelyn-Liardet's Pat..... 562

Exports, Notes on 212
Exports, Opportunity for 212
Exports, U. S. 529
Extension Gold Mg. Co., Colo 357

F

Fahnestock, H. C. 108
Failures, Business, U. S 379, 619
Fairbanks Co. 587
Fairbanks, H. W., Folded Vein in Ready Relief Mine, Cal. 321
Fairley, Wm., *Mine Ventilation Made Easy* 435
Falb Predicts Destructive Comet 49
Famous Tunnel, Colo 589
Fanny Rawlings Mine, Colo, 110, 319, 565
Fante' Pat. Making Oxygen 465
Fan Ventilator, Hobbs' Pat. 562
Far Down Mine, Colo 301, 446
Farey, E. 103
Farish, John B 179
Farnsworth, P. T. 204
Farrell Mine, Cal 157, 245
*Farrel Rock Breaker 273
Farrow Hill Mine, Ala 325
Fave, General 252
Fee Coal Mine, Wyo 592
Feed for Stamps, Gilbert's Pat. 59
Felix Coal Mine, Wyo 352
Fell's Pat., Lead Salts from Ores 490
Fennell, T. G. 539
Ferguson District, Nev 327
Ferguson, George A 253
Ferranti's Pat. White Lead 395
Ferreira Gold Mg. Co., Transvaal 88
Ferro-Manganese, Exports 217
Ferron, T. A. 444
Ferry, Novel Railroad 107
Fertilizer Industry 271
Fertilizing Chemicals, Market ... Weekly
Financial Review 123, 267
Finland, Copper 576
Finlayson's Pat. Steam Generator 413
Fippin, Rough & Ready Mine, Cal. 588
*Fire-clays, Refractoriness 367
Firedamp Detector, Fletcher's Pat. 515
Firedamp Indicator 127
Firedamp Test Lamp, Stokes' Pat 251
*Fire Doors for Mine Shafts 321
Firestone's Pat. Brick Kiln 419
Firth's Pat. Mine Props 456
Fischer, George K 136, 539
Fish Commission, U. S 123, 363
Fisk Gold Mg. Co., Colo 158, 549
Fisk, W. W. 372
Fitzhugh Mine, Colo 230
Flagstaff Mine, Nev 135, 207, 285, 381
Flat Creek District, Cal. 205
Flat Top Coal Ass'n, W. Va 353
Flat Top Coal Field, W. Va 304
Fleming, H. S. 324
Fletcher, E. L. *Quantitative Assaying with the Blowpipe* 555
Fletcher's Pat. Firedamp Detector 514
Fleuss' Pat. Compressing Pump 323
Flood, James L. 525
Flood's Pat. Air Compressor 466
Florence Iron River Co., Mich. 491
Florence Mill, Colo 510
Florida Kaolin Deposits 436
Florida Pebble Miners' Ass'n 62
Florida Phospates 520
Florida Short Line 564
Florida Syndicate 110
Flory & Co. 85
Flume Riffle, Baggs' Pat. 490
Flying Machines, Progress in 435, 459
*Fogh, Carl S., Velardena Mines, Mex. 29
Foley & Anderson's Pat. Ore Separator 347
Foot's Creek Placers, Ore 112, 328
Forbes Reef Mg. Co., Transvaal 305
Forchhammer, P. W. 36
Ford's Pat. Metallurgical Plant 107
Foreclosure, Action 484
Forehearth Jacket, Iles' Pat. 203
Forest Hill Mine, Cal. 254
Forest Oil Co., Pa. 256
Forfeiture of Claims 82
*Forging Press, Breuer-Schumacher 293
Formosa, Coal 424
Forrester's Pat. Brick Kiln 35
Forster, John Harris 611
Fort Bragg Lumber Co., Cal. 85
Fort Meade Phosphate Co., Fla 421, 446
Fort Bayne Coal and Iron Co. 98, 234
Forty-Fort Coal Co., Pa 87, 351
Foster, C. Le Neve, *Report of Inspector of Mines of Great Britain* 531
Foster's Pat. Pump 347
Fouche & Carey, Ga. 565
Foulds' Pat. Mica Splitting 395
Foundrymen's Ass'n 156, 252, 444
Foundry Plant, Merchant's Pat. 275
Foundry Terms, Dictionary 603
Four-Mile Placer Mg. Co, Colo 326
Fowler, S. S., Mining Industry of British Columbia 440
Fox Coal Co., Tenn. 88
Fox Island Granite Co., Me. 469
Fox, Jesse W. 348
Fox's Pat. Power Hammer 131
Fraction Mine, Colo 86
Frame Water-Wheel Co. 300
France, Bank of ..... Weekly
France, Cie de Phosphates, Fla. 421
France, Coal and Iron Trades 272
France, Exhibit at Antwerp 323
France, Exports and Imports 179
France, Gold and Silver Imports and Exports 164
France, Iron Ore Supply 4
France, Iron and Steel 83, 289, 292
France, New Blast Furnaces 179
France, Steel Rails 179
France, Trade Returns 523
Franklin Con. Coal Co., Md 62, 134
Franklin Institute 300
Franklin Institute Medals 35
Franklin Iron Mine, Minn., 62, 206, 326, 374, 590
*Franklinite Deposit, Mine Hill, N. J. 197
Franklin Mg. Co., Mich, 11, 62, 107, 134, 203, 230, 278, 309, 350, 370, 419, 422, 453, 508, 517, 541
Franklin's Pat. Conveyor 299
Frasch's Pat., Concentrating Nitric Acid 323
Fraser & Chalmers 133, 588, 612
*Fraser & Chalmers, Air Compressor for the Transvaal 201
Frazer's Pat. Precipitate Collector 83
Frazer River District, B. C. 471
Fredricton, Colo 589
Freedom Gold Mg. Co., Mont 182, 207
Freeland, F. T. 276
Free Silver Mg. Co., Colo 540
French Creek Falls Quarry, Pa 351
French Gulch, Oregon 519
French President 620
French Ship Canal 466
Frick Coke Co., Pa 64
Friday Mine, Ore 592
Frisco Mine, Idaho 278, 587
Fritz, John 132
Fronheiser, James J. 276
Frontino & Bolivia Gold Mg. Co, Colombia 352, 616
Frossard, J. D, *Nickel Ores of Sudbury, Canada* 99, 123
Frostburg Coal, Md 255
Fuel Economizer, Milne's Pat. 443
Fuel Feed, Cooke's Pat. 251
Fuel Gas and Mfg. Co. 445
Fuller's Pat. Pulverizer 323
Fulton Coal Co 93
Fulton, John 108
Fulton's Pat. Furnace 466
Fume Arrester, Storer's Pat. 299
Funk & Wagnalls, *Standard Dictionary* 99
Furman, H. Van F., *Manual of Practical Assaying* 51
Furnace, Air Admission, Thiell's Pat. 227
Furnace, Armstrong's Pat. 323
Furnace, Baldwin's Pat. 395
Furnace, Beckwith's Pat. 107
Furnace, Beesley's Pat. 131
Furnace, Bonehill's Pat. 227, 419
Furnace, Bow's Pat. 514
Furnace, Brand's Pat. 490
*Furnace, Brown's Horseshoe 441
Furnace, Browne's Pat 203
Furnace, Butman's Pat 59
Furnace, Caddy's Pat. 586
Furnace Cast House, Miller's Pat. 595
Furnace, Chazotte's Pat. 347
Furnace Chill, Laughlin's Pat. 35
Furnace Combustion, David's Pat. 466
Furnace Cooler, Iles' Pat. 203
Furnace, Conway's Pat. 514
Furnace, Coxe's Pat. 347, 395
Furnace, Curry's Pat. 203
Furnace, Dark's Pat. 413
Furnace, Engelbach & Bretherton's Pat 595
Furnace, Ford's Pat. 107
Furnace, Fulton's Pat. 466
Furnace, Gallagher's Pat. 35
Furnace, Gas, Belmor's Pat. 466
Furnace, Gas, Denz's Pat. 155
Furnace, Graham's Pat 610
Furnace, Gulickson's Pat. 562
Furnace, Hartfe's Pat. 227
Furnace, Hemingway's Pat. 131
Furnace, Hinstin's Pat. 514
Furnace, Klonne's Pat. 131
Furnace, Laird's Pat. 251
Furnace, Lorraine's Pat. 275
Furnace, McMillan's Pat. 443
Furnace, Metallurgical, Butler's Pat. 490
Furnace, Milton's Pat. 299
Furnace, Morrison's Pat. 419
*Furnace, Muller, for Boilers 583
Furnace, Muller's Pat. 538
Furnace, Newton's Pat. 107
Furnace Practice, Improvements 51, 99
Furnace, Refractory Ores, Butterfield's Pat. 419
Furnace, Richards' Pat. 227, 323, 347
Furnace, Roasting, Blake's Pat. 131
Furnace, Roasting, Brown's Pat. 466
Furnace, Roasting, Spiers' Pat. 251
Furnace, Rober's Pat. 179
Furnace, Schlieper & Harrison's Pat. 466
Furnace, Sperry's Pat 203, 419
Furnace, Stacy's Pat 107
Furnace Tap, Matthewson's Pat. 203
Furnace, Thomas' Pat 490
Furnace, Thwaite's Pat 227
Furnace, Wagner's Pat. 289
Furnace, Walsh's Pat. 227
Furnace, Warner's Pat 371
Furnace, Wegener's Pat 347
Furnace, Wilkinson's Pat. 538

G

Gaboury Mine, Colo 229
Gadsden Coal and Iron Co., Ala. 253
Gaffron's Pat. Amalgamator 532
Gagnon Mine, Mont. 303
Galena District, Kan. 541
Galena Ore Treatment, Joplin 104
Gale's Pat. Dust Collector 275
Gallagher's Pat. Furnace 35
Gallo-Roman City, Buried 28
Galt Coal Co, Mont. 255, 279
Galvanizing Wire, Wright's Pat. 371
Gambetta Mine, Mont. 615
Gamon, F. A. 444
Gap Nickel Mine, Pa. 304
Garbutt Mine, Colo 230, 254, 277
Garden City Mg. Co., S. Dak. 88
Garden City Sand Co. 539
Gardner, J. T. 108
Garfield Mine, Wyo. 257
Garfield Mg. Co., Nev. 542
Garis & Welsh's Pat. Air Valve 59
Garland Chain Co. 253
Garnier, Jules, Action of Electricity on Carbonization of Iron 58
Garrison, Abraham 467
Garroway's Pat. Caustic Soda Preparation 586
*Gas Analysis, Uehling's Pat. 586, 608
Gas Apparatus, Curley's Pat. 371
Gas Apparatus, Glasgow's Pat. 443
Gas Apparatus, Mullin & Green's Pat 275
Gas Apparatus, Peters' Pat. 275
Gas Consumption, Paris. 580
Gas Engine, Carsey's Pat. 371
Gas Engine, Hartley & Kerr's Pat 251
Gas Engine in Mine and Mill Plants 266
Gas Engine, Narjot's Pat. 227
Gas Engine, Shepperd's Pat. 586
Gas Engine, Swain's Pat. 490
Gas Engine, Thayer's Pat. 323
*Gas Engine, Weber. 291
Gaseous Fuel, Efficiency 560
Gas Furnace, Axdorfer's Pat. 538
Gas Furnace, Harleman's Pat. 275
Gas Generator, Schwahm's Pat. 610
Gas Generator, Smith's Pat. 323
Gas Generator, Stearn's Pat. 371
Gas Leases, Contract 604
Gas Lighting and Gas Fitting 363
Gas Machine, Pomeroy's Pat. 323
Gas Making, Bedelman's Pat. 419
Gas Making, Convert's Pat. 347
Gas Making, Dvorkovitz's Pat 83, 347
Gas Making, Hayes' Pat. 227
Gas Making, Johnson & Hall's Pat. 515
Gas Making, Weaver's Pat. 130
Gas Making, White's Pat. 371
Gas in Mine, Liability for 107
Gas Motor, Lee's Pat. 371
Gas Producer, Bemelmans' Pat. 227
Gas Production, Blake's Pat. 59
Gas, Producer, for Burning Lime, Koneman's Pat. 131
Gas Producer, Duff's Pat. 323
*Gas Producer, Danber 439
Gas Producer, Hutchinson's Pat. 203
Gaston County Pyrites, N. C. 208, 567
Gaston Ridge, Cal. 349
Gas Wells, China 131
Gates Iron Works 181, 491
*Gate Valve, Lunken 10
Gauge, Bristol's Pat. 155
Ganjot, E., Tungsten Steel 555
Gaul's Pat. Draft 59
Gayton Coal Co., Va. 16
Gaylord Coal Mine, Accident 172
Gaylord Colliery, Pa 375, 399
Geldenhuis Estate, Transvaal 88, 616
Gellivara Malmfalt Co., Sweden 592
Gem Mine, Colo 134, 613
Gem Mine, Idaho 38, 278, 422
Gem Mine, Ore 423, 543
Gem Slate Co., Pa. 232
Gems, Legends of 75
General Electric Co. 132, 344, 587
General Logan Mg. Co., Utah 496
General Mfg. Co. 133, 372
Gen. Thomas Mine, Colo. 134
Genesee Valley Bluestone Co., N. Y. 567
Genesee Valley Lime Co., N. Y. 567
Genesee Mine, Mont 183
Geographical Congress, Chicago, International 147
Geological Congress, International 228
Geological Expedition, Princeton 275
Geological Guide Book 603
Geological Questions, Plain English on 3
Geological Society of America 3
Geological Society of America, Bulletins 195, 219, 267, 459
Geological Society of France 611
Geological Survey, Alabama 363
Geological Survey, Arkansas 241
Geological Survey, Iowa 484
Geological Survey, Minnesota 603
Geological Survey, Missouri, 50, 89, 265, 298, 333, 339, 457, 529
Geological Survey, North Carolina 315
Geological Survey, United States, 75, 433, 507, 579
Geology, Economic, of the United States 75
Geology, Lectures on 363
Georges Creek Coal Co., Md 257, 362
George, Thomas 12
Georgia District, S. Dak. 351
Georgia Mg. Co. 278
Georgiana Mine, Ga 230
Gerhard, W. P., *Gas Lighting and Gas Fitting* 363
German Concentrating Machinery 464
German Gulch, Mont. 615
Germany, Coal 247, 376
Germany, Currency Commission 189
Germany, Electric Smelting 529, 536
Germany, Foreign Trade 620
Germany, Imperial Bank 43
Germany, Iron Production, 4, 25, 193, 352, 369, 434, 457
Germany, Mineral Production 370
Germany, Miners' Wages 485
Germany, New Silver Coinage 284
Germany, Railroad Material 368
Germany, Silver Production 409
Germany, State Railroads 169
Germany, Trade 276
Getchell Mine, Cal. 133
Geyser Group, S. Dak. 40
Geyser Mg. Co., Colo 468, 517
Gibbonsville Mg. Co., Idaho 254
Gibbs' Pat. Blasting Apparatus 347
Gibbs' Pat. Percussion Tool. 371
Gibson, A. M., Coal Measures of Blount Mt., Ala. 489
Gifford, Stanley 12
Gilbert, H. W. 411
Gilbert's Pat. Feed for Stamp Mills 59
Gillespie-Jones Oil Suit, W. Va. 352
Gill Placers, Idaho. 230
Gilpin County Mill, Colo 85
Gilpin, William 108
Gilt Edge Mg. Co., Mont. 15
Gimlet Mine, Idaho 613
Gisholt Machine Co. 539
Githens' Pat. Blasting 83
Githens' Pat. Rock Drilling 347
*Githens' System of Rock Drilling 248
Gladstone Mg. Co., Cal. 205, 277
Glasgow Iron Co. 492
Glasgow's Pat. Gas Apparatus 443
Glasgow's Pat. Wrapper Holder 35
Glass Furnace, Bacon's Pat. 83
Glass Furnace, Barr's Pat. 586
Glass Furnace, Everett's Pat. 610
Glass Furnace, Leiberling's Pat. 562
Glen Allen Cannel Coal Co., W. Va. 160
Glencairn Mg. Co., Transvaal 88
Glencoe Group, Utah 64
Glen Marcy Coal Co., Tenn. 40
Glen Mg. Co., N. Y. 470
Glen, Wm., Explosion of Grahamite Dust 196
Globe Iron Works Co. 12
Gloster Mine, Mont. 279
Glover Mine, Ga. 86
Gmehling, A., Metallurgical Notes on Chile 75
Godfrey's Pat. Blower 323
Godfrey, W. G 36
Godshall, L. D., Chlorination of Gold Ores 5, 32, 73
Goetz, George W. 539
Goetz Pat., Copper Extraction 443
Gogebic County, Mich., Mine Inspector's Report 75
Gogebic Iron Range, Mich. & Wis. 64, 302, 577, 590, 616
Gogebic Iron Range, Strike, 577, 590, 616
Gold Accumulations, Europe 499
Gold Bank Tunnel, Cal 13
Gold Bearing Slates, Magnetic Phenomena 196
Gold Belt, Alabama 57
Gold Belt, Leadville, Colo 555
Gold Brick Mg. Co., Idaho 62
Gold Bronze Mine, Cal. 325
Gold Bug District, Ore. 39
Gold Bug Mine, Mont. 182
Gold Creek Placer Co., Mont. 302
Gold, Cripple Creek 30, 401
Gold Cup Mine, Colo 326
Gold, Cyanide Process 533
Gold Dollar Mine, Colo 37, 517
Gold Dollar Mg. Co., Colo 254, 373
Gold, European Banks 332
Gold Exports 337, 362, 410
Gold Extraction from Black Sand, Dorr's Pat. 413
Goldfield, Chota Nagpur, India 535
Gold-fields, Scotland 281
Gold-fields, Western Australia 438, 451
Gold Hill Mine, Ont. 189
Gold Along the Hudson 97
Gold Imports 523
Gold King Mine, Colo. 541
Gold, Mercur Mine, Utah 51
Gold, Metallurgy of 555
Gold Milling, Australasia 101, 128
Gold Milling, Hand Rook 291, 531
Gold Milling, Wire Screens 604
Gold Mine, Deepest 100
Gold Mine, Largest 362
Gold Mines, Ont. 76
Gold Mines, South Africa 386
Gold Mining, Canada 558, 582
Gold Mining, Great Britain 105
Gold Mining, India 361
Gold Mining, Russia 339
Gold Mining, Southern States 149
Gold, New South Wales 436
Gold, Nova Scotia 145
Gold Nugget Mine, Ari. 109
Gold Nugget Mine, Cal. 540
Gold Ores, Chlorination 5, 32, 73, 80
*Gold Ores, Milling of, 174, 198, 460, 486, 511
Gold, Peculiar Appearance in 514
Gold Precipitation from Cyanide Solution, Raleigh's Pat. 131
Gold Production, Colo 529, 540
Gold Prospecting, Mich. 518
Gold, Queensland 588
Gold Rock Mg. Co., Ari 157
Gold Rock Mg. Co., Colo. 85
Gold Sales, India 377, 620
Gold, Scotland 413
Gold Separator, Stewart's Pat 83
*Gold Separator, Tierra Seca 341
Gold Slimes, Treating, Raleigh's Pat. 275
Gold and Silver in the Arts 19
Gold and Silver Exports and Imports, Weekly
Gold and Silver Exports and Imports, 50
Gold and Silver, Loss in Scorification Assay 534
Gold and Silver, Valentine's Estimate 77
Gold and Silver, World's Production, 554, 556
Gold, Silver, Platinum and Tellurium Mg. Co., Mont 207
Gold Washer, Murdock's Pat. 466
Gold, Witwatersrand 265
Goldberg District, Ala 301, 372, 420
Golden Cliff Mine, Ari. 349
Golden Cloud Mg. Co., Mont. 63
Golden Crest Mine, S. Dak. 328
Golden Eagle Mine, Ari. 277
Golden Eagle Mine, Cal. 540
Golden Eagle Mine, Colo 277, 349
Golden Eagle Mine, Ore. 543
Golden Era Mg. Co., Mont. 566
Golden Feather Mg. Co., Cal. 21
Golden Fleece Mg. Co., Colo., 203, 419, 446, 469, 508, 525
Golden Gate Mg. Co., Cal. 110, 381
Golden Giant Mine, N. M. 256, 351
Golden Reef Mg. Co, Mont. 279, 591
Golden Reward Chlorination Works, S. Dak. 73
Golden Reward Mg. Co., S. Dak., 11, 107, 203, 419, 496, 508, 519, 543
Golden Rod Mine, Mont. 469
Golden Star Mine, Idaho 278, 302
Golden Star Mg. Co., Mont. 38, 374
Golden Sunlight Group, Mont., 255, 327, 472, 542
Golden Treasury Mine, Colo 158
Golden West Oil Co., Cal. 325
Goldstone Camp, Cal. 205
Goler Placers, Cal. 158
Goleta Mg. Co., Cal. 429
Goode's Pat. Artificial Stone 395
Good Hope Con. Mg. Co., Cal., 61, 229, 588
Good Hope Mine, N. M. 135
Good's Pat. Blower 227
Good Prospect, Cal. 325
Good Return Mg. Co. 477

Gorby, S. S., Natural Gas in Indiana. 366
Gorby, S. S., *Report of State Geologist of Indiana*..... 291
Gordon, W. K..... 84
Gorham, H. M..... 276
Gotham Group, S. Dak..... 40
Gould & Curry Mine, Alaska..... 588
Gould's Pat. Tube Machine..... 443
Gould's Pat. Water Wheel..... 419
*Gould System of Excavation..... 436
Gover Mine, Cal..... 110
Governor Mine, Mont..... 366
Grafton's Patent, Rolling Sheet Metal 323
Grafton & Spears' Sheet Rolling Mill. 443
Graham & Chapman's Pat. Miners' Lamp..... 347
Grahamite Dust, Explosion..... 196
Graham's Pat. Furnace..... 610
Grande Ronde Mines, Ore..... 328
Grand Prize Mine, Mont..... 469
Grand Rapids Coal Co., Pa..... 351
Grand Rapids Mfg. Co..... 300
Grand Victory Mine, Cal..... 13
Grand View Mine, Colo..... 613
Grand View Placers, Idaho..... 62
Granier, Emil..... 300
Granite Butte District, Mont..... 279
Granite Column, Large..... 101
Granite Gold District, Colo.....206, 373
Granite Hill Mine, Ca'..... 468
Granite Mine, Cal..... 398
Grant Locomotive Works..... 420
Granular Mixtures, Separating, McDonald's Pat..... 131
Granulating Slag and Matte.....76, 147
Graphic Mine, N. M..... 256
Graphite, Ceylon..... 305
Graphite, Mich..... 519
*Graphite Sight Feed Lubricator..... 250
*Grass Valley, Cal., Milling Gold Ores.....460, 486, 511
Grate Bar, Furroffski's Pat..... 107
Grate, Mulier's Pat..... 83
Grate, Roney & Stranahan's Pat..... 490
Graves' Pat. Tuyeres..... 347
Graveyard Flat, Wash..... 532
Gray's Pat. Zinc Oxide Manufacture. 299
Great Britain, Chemical Industry.... 5-5
Great Britain, Coal..... 607
Great Britain, Coal Exports..... 305
Great Britain, Exports and Imports.. 500
Great Britain, Gold Exp. and Imp.... 596
Great Britain, Iron and Steel Exports.....395, 481
Great Britain, Iron Trade, 26, 49, 338, 376, 505, 577, 582
Great Britain, Mine Inspectors' Reports..... 531
Great Britain, Mineral Production, 385, 393
Great Britain, Mining Accidents..... 179
Great Britain, Mint.....140, 523, 571
Great Britain, New Coalfields..... 161
Great Britain, Open-hearth Steel..... 362
Great Britain, Railroad Accidents ... 466
Great Divide Mine, Ore..... 280
Great Eastern Mine, Cal..... 613
Great London Mine, Mont..... 566
Great Mogul vs. Prince Albert..... 110
Great Vein Coal Co., O..... 87
Great Western Coal Co., Ia..... 398
Great Western Quicksilver Mg. Co., Cal..... 11
Greece, Manganese Mines.....581, 610
Greece, Mineral Industry..... 342
Greece, Nickel Coins..... 44
Greek Boys' Mine, Alaska..... 181
Greenback Mine, Colo..... 613
Green's Pat. Blower..... 203
Green's Pat. Brick Kiln.....155, 179
Greenville Block Coal Co., Pa..... 113
Greenwood's Pat. Coal Cutter..... 586
Greenwood's Pat. Electrode..... 155
Gregory Mine, Cal.....13, 229
Gregory-Bobtail Mg. Co., Colo..... 85
Gregory's Pat. Lead Pigments..... 562
Gregory's Pat. Phosphatic Fertilizers..... 227
Grey Eagle Mg. Co., Cal..230. 493, 565, 613
Griffin's Pat. Pulverizing Mill....227, 562
Grimes Creek Placers, Colo..... 941
Grinding Mill, Caper's Pat..... 179
Grinding Mill, Straub's Pat..... 83
Groetzinger & Sons.....132, 252
Grohman, E., Mineral Industry of Greece..... 342
Grote's Pat. Artificial Stone..... 586
Ground Hog Con. Mg. Co., Colo. 14, 206, 301, 373, 445, 540
Ground Squirrel Mg. Co., Mont...183, 447
Grubb's Oil-field, Pa..... 256
*Gruson Ball Mill..... 464
Guatemala, Default..... 169
Guggenheim & Co., Mex..... 471
Guiana, British, Gold.113, 209, 281, 448, 459
Guiana, Dutch, Gold..... 281
Guiana, French, Gold..... 329
Guild Gold Mg. Co., Cal..... 429
Guild Mineral Washer Co..... 157
Guild's Pat. Phosphate Rock Treatment..... 83
Gulf Coast Smelting and Mg. Co., Ariz..... 205
Gulickson's Pat Furnace..... 562
Gullman's Pat. Dredge..... 251
Guns, Rapid-fire, Trial of..... 538
Gurley, W. & L. E..... 467
Guy Fawkes Reef Co., Mashonaland, 329
Gwin Mine, Cal..... 349

H

Haas' Pat., Rod Drawing..... 538
Hadfield's Pat. Manganese Steel..... 610
Hadfield, R. A..... 611
Hahn, O. W..... 539
Hahn's Peak Mg. Co., Colo..... 230
Haiti..... 75
Halberson's Pat. Kiln..... 538
Hale Mine, Minn..... 159
Hale & Norcross Mg. Co., Nev., 15, 39, 63, 112, 160, 231, 279, 303, 447, 470, 518
Haller's Pat. Mine Cage..... 275
Hallett, S. I..... 300
*Hallett, S. I., Jig for Testing Ores.. 127
Hallett, S. I., Silver Mine Dividend.. 99
Hallowell Granite Co., Me 422, 469
Hallsted, J. C..... 276
Hall, T. B., *Infringement of Patents* 75
Halse, E., Notes on Stoping Ground.. 123
Ham & Birney Mine, Cal..... 110
Hambitzer, J. F..... 587
Hamilton, A. C..... 348
Hamlin's Pat. Sheet Metal Pipe 395
Hammarberg's Pat., Rolling Angle-bars..... 466
Hammer, Lemp's Pat..... 131
Hammer Mine, Idaho..... 589
Hammesfahr's Pat. Hardening Steel. 395
Hammond, J. B..... 12
Hammond's Pat. Metal Cutter..... 299
Hand-hole Plates, Pratt's Pat..... 371
Hand Mine, Ga..... 278
Hapgood, A. G..... 12
Hard Chance Group, Colo..... 421
Hardly Able Oil Co., W. Va..... 448
Hardscogg's Pat. Coal Drill..... 107
Hardscogg's Pat. Mg. Tool..... 490
Hardscrabble Mine, Nev..... 542
Hardware Club, New York..... 508
Hargreaves' Pat. Electrolytic Apparatus.....155, 347
Harleman's Pat. Gas Producer..... 275
Harney Peak Tin Mg. Co., S. Dak.. 602, 604
Harper's Pat. Smoke Consumer..... 53
Harqua Hala Gold Mg. Co., Ari., 45, 133, 229, 253, 349, 397, 405, 419, 468, 492, 508, 540, 588
Harris, A. W. *Review of the Illinois-Calamity-Apex Case*..... 195
Harris Gold Mine, N. C..... 87
Harris, G. W., Southern Appalachian Bauxite Deposits..... 196
Harris, Harvey..... 204
Harris, H., Copper Mines of Singhbhoom, India..... 345
Harris, J. H..... 84
Harris, Robert..... 396
Harrison Boiler Works.....445, 516
Harrison Coal Co., Ia..... 278
Harrison Conveyor Co..... 253
Harrison, L. C..... 252
Harrison & Spencer, Mo..... 135, 302
Harrington, M. W., *Weather Making* 435
Harry E. Colliery, Pa..... 495
Hartfe's Pat. Furnace..... 227
Hartley's Pat. Gas Engine..... 251
Hartsfeld Furnace Co.....313, 387, 411, 422
Harvard Geological Expedition..... 342
Harvard Engineering Society..... 108
Harvard Mine, Colo.....301, 589
Harvard University..... 372
Harvey Lease, Colo..... 61
Hass Electric Co..... 324
Hassell's Pat. Conveyor..... 131
Hastings, J. B., Iowa Mines..... 267
Haulage, Cable, Walker's Pat..... 490
Hayes' Pat. Brick Kiln..... 275
Hayes' Pat. Gas Manufacture..... 227
Hawkeye Group, Mont..... 422
Hazleton Colliery, Pa..... 136
Headwater Lode, Colo..... 85
Heath Rail Joint Co..... 587
Hecla Con. Mg. Co., Mont..... 11
Hecla Mg. Co., Cal..... 229
Hector Mine, Cal.....254, 516
Hedberg, E.....60, 372
Hegener's Pat. Jigs..... 35
Heibling's Pat. Potash Alum Making 610
Heil's Pat. Treating Castings..... 203
Heine Safety Boiler Co.....524, 612
Heinze Smelter, Mont..... 616
Helena & Frisco Mg. Co. Mont....108, 508
Helena Mg. Stocks..... Weekly
Helena & Victor Mg. Co., Mont 15
Helical Gears..... 2
Hellgate Canyon, Wash..... 592
Helvetia Mine, Cal..... 613
Hemingway's Pat. Furnace..... 131
Hemingway's Pat. Iron Oxide Manufacture..... 131
Hemingway's Pat. Iron Paint..... 83
Henderson Mt. Mg. Co., Mont..... 159
Henneman's Pat. Coating Metal..... 347
Henrietta Mg. Co., Ari.....109, 484, 492
Henry George Mine, Mont..... 350
Heraklea Coalfield, Turkey..... 319, 376
Hernon's Pat. Stoneworking Machine..... 131
Heron, James..... 132
Herring's Pat. Coal Separator..... 538
Herron, C. B..... 444
Hersey's Pat. Boiler..... 83
Herth's Pat. Mine Door..... 131
Hess' Pat. Pump..... 203
Hewitt's Pat. Coke-making..... 11
Hewitt's Pat. Conveyor..... 371
Hiawassie Gold Mg. Co., Ga..... 326
Hibes' Pat. Carbureting Air..... 35
Hicks' Pat. Steam Elevator..... 371
Hicks-Wise Mine, Ala..... 277
Hidden Treasure Mine, Cal.....37, 205
Hidden Treasure Mine, Wash..... 519
Higgins, S..... 132
Highland Light Mine, Wash..... 519
Highland Mine, Mont..... 614
Highland Mg. Co., Colo..... 349
Highland Mg. Co., S. Dak..... 351
High Ore Exploring Co., Mont..... 183
High Springs Phosphate Co., Fla..134, 230
Hiko Mg. Co., Nev.....374, 567
Hilda Mine, Colo..... 421
Hillsboro District, N. M..... 303
Hillhouse, J. D..... 12
Hill's Pat., Brazing..... 347
Hine, L. A..... 348
Hinkley & Egery Iron Co..... 612
* Hirota, R., Starting Lever for Mill Engines..... 101
Hirsching's Pat., Precipitating Metals..... 107
Hoepfner's Pat. Electrolysis.....371, 610
Hoepfner's Pat. Electrolytic Refining. 610
Hobbs' Pat. Fan..... 562
Hoey's Pat. Hoist..... 59
Hoffman, C. F., Red Point Drift Mine, Cal..... 391
* Hofman & Demond, Refractoriness of Fire-clays..... 367
Hogan's Pat. Boiler..... 562
Hogan's Pat. Oil Purifier..... 131
Hoist, Calhoun's Pat..... 107
Hoist, Hoey's Pat..... 59
Hoist, Murray's Pat..... 35
* Hoisting Engine, Montana..... 55
* Hoisting Mine Caps..... 489
Holden Smelter, Colo.....61, 230, 589
Holdman, L..... 491
Holdridge's Pat. Oil Burner..... 323
Holland, C. B..... 515
Holland, M. L..... 563
Hollis, H. L..... 36
Hollis' Pat., Recovering Tin from Scrap..... 35
Holly, Birdsall..... 420
Holman's Pat. Pulverizer..... 395
Holmes' Patent Steam Shovel..... 490
Holt's Pat. Separator..... 131
Holy Cross District, Colo..... 14
Home Coal Co., Utah..... 64
Home Mine, Idaho..... 520
Homestake Gold Mine, Idaho.....62, 302
Homestake Mg. Co., Mont..... 494
Homestake Mg. Co., S. Dak., 11, 16, 64, 69, 107, 184, 203, 261, 323, 351, 381, 419, 423, 470, 477, 508, 567, 573
Honduras, Mining Machinery..... 584
Hood for Miners, Safety, Ash's Pat.. 586
Hooker-Colville Pump Co..... 611
Hoot, H. W., *Parliamentary Tactics and Rules for Debate*..... 98
Hoover Hill Mine, N. C..... 208
Hope Extension Mg. Co., Mont..... 494
Hope Mg. Co. Cal..... 468
Hope Mg. Co., Mont., 11, 182, 213, 231, 323, 419, 508, 614
Hopke, Prof. O., *Textbook of Technical Mechanics*..... 603
Hopkins' Pat. Boiler..... 443
Hopkins' Pat. Turbine..... 610
Hopkins, W. J., *Telephone Lines*..... 219
Horner, E., *Map of La Plata Goldfields, Colo*..... 219
Horner & Roberts, Pa..... 135
Horn Silver Mg. Co., Utah, 11, 16, 117, 285, 323, 328, 352, 419, 423, 448, 496, 508, 597, 615
Horseshoe Mine, Idaho..... 254
Horsfall, H. A., Ocampo District, Mex..... 171
Horton's Pat. Well Drill.....347, 466
Hose Nozzle Support, Cain's Pat..... 443
Hot Creek District, Nev..... 39
Hotchkiss, J. E., Pocahontas Coalfield..... 222
Hot Pot Mine, Colo..... 134
House's Pat. Boiler..... 586
Houston, E. J., *Electricity One Hundred Years Ago and To-Day*..... 555
Houston's Pat. Charcoal Kilns..... 131
House's Pat. Roasting Kiln..... 443
Hovey, Dr. E. O..... 36
Hovey, E. O., Geological Society of America..... 3
Hover, E. O., Missouri Mineral Exhibit.....28, 54
Howard, A. B., Jr., *Report of Maryland Bureau of Industrial Statistics*..... 123
Howard, C. M..... 467
Howard-Harrison Pipe Works....109, 324
Howard J. E., Tests by Repeated Stresses..... 247
Howard's Pat. Power Hammer..... 107
Howard's Pat. Stone Dressing Tool.. 131
Howarth's Pat. Drill..... 514
Huanchaca Silver Mg. Co., Bolivia.40, 328
Hudnall's Pat. Roller Mill..... 443
Hudson Bay Exploration..... 323
Hudson Iron Co., Mass..... 182
Hudson River Brickyards, N. Y..... 231
Hudson River Bridge..... 607
Hughes' Pat. Phosphate Treatment.. 155
Hulda Mg. Co., Colo..... 493
Humboldt Mine, Colo.....134, 517
Humboldt Mg. Co., N. M..... 375
Humboldt Oil Co., Cal..... 205
Hunter Mine, Wash.....496, 520, 543
Hunter's Pat. Electric Welding..... 514
Hunter's Pat., Recovering Tin from Scrap..... 35
Huntingdon & Broad Top R. R. Co., Pa..... 93
Huntington, A. K..... 252
Hunt's Pat. Dredge..... 83
Hunt's Pat. Pulverizer..... 347
Hurontario Ship Canal Co., Can..... 318
Hurricane Id. Granite Co., Me..... 469
Huston, H., *Colorado System of Irrigation Laws*..... 170
Hutchings, W. W., Furnace Improvements..... 100
Hutchinson's Pat. Gas Producer..... 203
Hutchinson's Pat. Steel Castings.. 514
Hute's Pat. Miner's Pick..... 466
Hydraulic Mortar, Bloemandahl's Pat..... 466
Hydraulic Machine Co..... 612
*Hydraulic Packing..... 77
Hydraulic Press Governor, Naylor's Pat..... 107
Hydrocarbon Burner, Ames' Pat..... 251
Hydrocarbon Burner, Attwood's Pat 395
Hydrocarbon Burner, Cole's Pat..... 35
Hydrocarbon Burner, Mullaney's Pat. 251
Hydrocarbon Burner, Mummery's Pat..... 299
Hydrocarbon Burner, Nickerson's Pat..... 466
Hydrocarbon Burner, Reed's Pat. 419, 460
Hydrocarbon Burner, Somers' Pat.... 323
Hydrogen, Passage through Palladium..... 586

I

Idaho Exploring Co., W. Australia.. 401
Idaho Mineral Production..26, 38, 193, 206
Idaho Mines..... 267
Idaho Mg. Co., Cal..... 61
Idaho Mg. Co., Mont..... 11
Idaho & Pittsburg Mg. Co.. Idaho... 589
Iles' Pat. Metallurgical Furnace 203
Illingworth's Pat. Ingot Mould..... 562
Illinois-Calamity-Apex Case, Review. 195
Illinois Mine, Idaho..... 541, 631
Illinois Mg. Institute..... 12
Illinois Phosphate Co., Fla..... 14
Illinois Pure Aluminum Co..... 539
Illinois Railroad Commission..... 435
Illinois Society of Engineers.....108, 132
Illinois Steel Co.....12, 60, 138, 141, 587, 611
Independence Group, Colo..... 421
India, Coal Trade..... 584
India Council Bills..... Weekly
India, Geological Report..... 291
India, Gold Sales..... 577
Indiana, Coal Miners..... 110
Indiana Mg. Co., Colo..... 589
Indiana, Natural Gas..... 366
Indiana Steel Co..... 300, 612
India, New Railroads..... 365
Indian Ridge Coal Co., Va..... 353
Indian Silver Experiment..... 506
Indian Troubles and Silver..... 74
Indian, Silver Experiment..... 43
Industrial Works, Bay City, Mich.133, 444
Industrie Nationale, Societe..... 108
Ingalls & Wyatt's Pat. Zinc Ore Treatment..... 251
Ingersoll Mg. Co., Mich..... 38
*Ingersoll-Sergeant Air Compressor.. 125
Ingersoll-Sergeant Drill Co..... 60, 276
Ingham's Pat. Blast Furnace..... 395
Ingot Casting, Smith's Pat..... 323
Ingot Charging, Morgan's Pat..... 562
Ingot Mould, Cantz' Pat..... 35
Ingot Mould, Illingworth's Pat..... 562
*Ingot Mould, Sebenius' Rotating.... 365
Injunction, Right to..... 484
Injured Men, Transportation in Mines..... 225
Inspection of Mines..... 346
Institution of Civil Engineers' Papers 307
Insurance, Compulsory, in Germany. 291
Intercepting Valve, Carter's Pat..... 107
Internal Navigation Congress..... 444
International Bimetallism.....458, 463
International Gold Mg. Co., Ont..... 233
International Mg. Co., Ont..... 592
International Nickel Mg. Co., Ore.... 15
International Talc Co., N. Y..... 327
Inter-Ocean Mg. Co., Utah..... 615
Inter-Republic Mg. Co., N. M..... 447
Interstate Mg. Co., Mo.....86, 469
Inventors' and Manufacturers' Ass'n. 199
Iowa Block Coal Co., Ia..... 62
*Iowa Coal Measures.....269, 294, 317
Iowa Fuel Co..... 62
Iowa Geological Survey, Coal Deposits..... 435
Iowa Labor Statistics..... 75
Iowa Mine, S. Dak..... 280
Iowa Society Civil Engineers..... 84
Inland Steel Co..... 611
Irrigation Congress, International, Report..... 219
Irrigation Laws, Colorado System.... 170
Irrigation Survey, U. S. Geological Survey..... 243
Iron, Alabama, for England..... 313
Iron, American, in Canada..... 601
Iron, Australia..... 513
Iron, Belgium..... 305
Iron Belt Mine, Wis.....256, 304
Iron Cap Mine, Colo..... 565
Iron, Carbonization, Electricity in.... 58
Iron, Colorado..... 97
Iron, Demand for..... 121
Iron Determination in Ores..... 342
Iron Founder Supplement..... 2, 267
Iron, France.....272, 289, 292
Iron, Germany.....4, 25, 257
Iron, Great Britain, 26, 49, 59, 64, 104, 169, 265, 290, 338, 395, 457, 481, 505, 577
Iron King Mine, Minn.....38, 159, 255
Iron King Mine, N. M..... 495
Iron, Magnetic Properties at Different Temperatures..... 466
Ironmaking at Birmingham, Ala..... 605
Ironmaking, Central Africa..... 513
Ironmaking, Germany..... 369
Iron Manufacture, By products..... 130
Iron Markets.....Weekly
Iron Miners, Lake Superior..... 1
Iron Mt. Mg. Co., Colo..... 589
Iron Mt. Mg. Co., Mont., 11, 87, 107, 135, 202, 255, 303, 323, 350, 422, 469, 508
Iron Mt. Placer Mg. Co., Wyo..... 495
Iron Ore, Agglomerated, Sanders' Pat..... 299
Iron Ore, Algeria..... 471
Iron Ore, Bilbao, Variations..... 459
Iron Ore, Canadian Lake..... 250
Iron Ore, Elba..... 586
Iron Ore, France..... 4
Iron Ore, Lake Freights..... 4
Iron Ore, Purifying, Potter's Pat..... 395
Iron Ores, Lake Superior.....170, 194
*Iron Ores, Mesabi Range..... 583
Iron Ores, North Carolina, 315, 435, 490, 555
Iron Ores, Spain..... 305
Iron Ores, U. S..... 397
Iron Ores, Utilizing, Reese's Pat..... 466
Iron Oxide Manufacture, Hemingway's Pat..... 131
Iron Paint, Hemingway's Pat..... 83
Iron Paints, D'Andria's Pat..... 131
Iron, Pig, U. S. Production.....1, 25
Iron Production, U. S., 145, 211, 337, 433, 457, 553, 558
Iron Refining, Barton's Pat..... 490
Iron Sand Working, Westport, Ore. 592
Iron Silver Mg. Co..... 405
Iron Smelting, Electric, in Germany, 529, 536
Iron Smelting, Saltmann's Pat..... 299
Iron and Steel Analysis, International Standard.....125, 318
"Iron, Steel and Coal Times"..... 243
Iron and Steel Institute, Great Britain, Journal.....219, 396, 611
Iron and Steel Production, U. S..... 73
*Iron and Steel, Segregation.....390, 418
Iron and Steel, U. S..... 79
Iron and Steel Works of the United States 531, 578

Iron, Sweden ... 103
Iron Trade, Chicago ... 7
Iron Trade, Pittsburg ... 8
Iron Trade, Staffordshire ... 389
Iron Works of Samaca, Colombia ... 556
Iron, Wrought, Ladd's Pat ... 347
Isabella Mg. Co., Colo ... 37
Isele Mine, Mont ... 566
Italian Group, Idaho ... 422
Ivanhoe Copper Mg. Co., N. M. ... 112, 423
Ivanhoe Smelter, N. M. ... 231

J

Jablochkoff, M ... 348
Jackson Iron Co., Mich ... 518
Jackson Mg. Co., Colo ... 589
Jade, Burma ... 201
Jaeger's Pat. Boiler ... 610
Jaques, W. H ... 539
Jamie Lee Mine, Colo ... 158
Janin, Louis, Jr ... 563
Janin's Pat. Amalgamating Silver Ores ... 251
Janin & Merrill's Pat. Cyanide Process ... 203
James' Pat. Metallurgical Furnace ... 131
James' Pat. Miner's Lamp ... 514
Japan, Cement ... 370
Japan, Coal ... 25
Japan, Coal Exports ... 31
Japan, Electric Traction ... 31
Japan, Railroads ... 463
Jarecki Mfg. Co ... 133
Jarvis-Conklin Mortgage Trust ... 348
Jay Hawk & Lone Pine Con. Mg. Co., Mont ... 279
Jay Gould Mine, Ore ... 135, 519, 543
Jay Gould Mine, Idaho ... 373
Jay Gould Mine, Mont ... 279
Jeanne d'Arc Mine, Mex ... 329
*Jeffrey Cable Conveyor ... 178
Jeffrey Mfg. Co ... 181
Jeffrey's Pat. Mining Machine ... 275
Jennie Dell Mg. Co., Mont ... 518
Jennie Mine, Mont ... 542
Jessie J. Copper and Zinc Mg. Co., Ark ... 253
Jessie Mg. Co., Colo ... 349, 373
Jenkins Brothers ... 109
Jenks, A. W ... 60
Jenks' Pat. Valve ... 371
Jigs, Hegener's Pat ... 35
*Jig for Testing Ores ... 127
Jim Crow Mine, Nev ... 135, 159, 327, 374, 423
Jim Crow & Monitor, Nev ... 39
Johnson County Oil, Wyo ... 88
Johnson, E. R., *Inland Waterways* ... 434
Johnson, F. G ... 156
Johnson, G. L ... 276
*Johnson, G. R., Ore Washers at Longdale, Va ... 223
Johnson, J. K ... 276
Johnson's Pat. Boiler ... 299
Johnson's Pat. Separator ... 35
Johnson's Pat. Smoke Consumer ... 83
Johnson Steel Co ... 253
Johnston's Pat. Gas Making ... 514
Jones & Laughlins ... 467
Jones, Thomas ... 276
Jones' Pat. Chain Machine ... 251
Jones' Pat. Furnace ... 131
Jones Rock Drill Co ... 397
Joplin Lead and Zinc Ore Market, Weekly
Jory, H. J., Modern Practice of Chlorination ... 80
Joseph, M. H., Mining in Southern Nevada ... 77
Josie Mine, B. C ... 232
Josie Mine, Wash ... 88
Joy's Pat. Boiler ... 562
J. R. Mine, S. Dak ... 519
Juessen, E ... 396
Justice Mg. Co., Nev., 39, 63, 87, 231, 279, 350, 381, 429, 447, 470, 518, 567
Julian District, Cal ... 468
Jumbo Group, Utah ... 400
Jupiter Mine, Utah ... 616

K

Kampf's Pat. Hydraulic Valve ... 371
Kanawha Coal Exchange, W. Va ... 64
Kane, Patrick ... 611
Kanimapoo Gold Mg. Co., Guiana ... 252
Kaolin, Ohio ... 543
Karwin Coal Mines, Austria ... 568
Kansas City Clay and Coal Co., Mo ... 230
Kansas City Smelting Co ... 539
Kansas City Steel Works ... 587
Kansas & Texas Coal Co., Ark ... 568
Kase, J. D., North Carolina Iron Ores ... 555
Katie Emmett Mine, Colo ... 134
Katie Mg. Co., Mont ... 182, 279, 542
Kearsarge Mg. Co., Mich ... 248
Keeley, Jerome & Co ... 84
Keim, Josiah ... 300
Keller's Pat. Brick Machine ... 155
Kelley's Pat. Pump ... 227
Kellner's Pat. Electrolytic Soda ... 35, 83
Kelly Hill Mine, Cal ... 492
Kelly, John F ... 60
Kelso's Pat. Wind Wheel ... 83
Kennedy, Julian ... 587
Kennedy Mg. Co., Cal., 11, 61, 107, 203, 323, 419, 508
Kennedy's Pat. Boiler ... 538
Kennedy, W., Iron Ores of East Texas ... 222
Kentuck Con. Mg. Co., Nev., 63, 111, 183, 279, 327, 350, 375, 578, 567
Kentucky, Coal ... 131, 206
Kentucky Mine, Utah ... 616
Kerr, Mark B ... 300
Kesker's Pat. Alumina Salts ... 11
Kessler Firebrick Works, Mont ... 207
Kessler's Pat., Concentrating Sulphuric Acid ... 562
Keyes, Charles R ... 491
Keyes, C. R., Coal Deposits of Iowa ... 435
*Keyes, C. R., Iowa Coal Measures, 269, 294, 317
Keystone Mine, Cal ... 110
Keystone Mg. Co., Nev ... 183
Keystone Mg. Co., S. Dak ... 328, 519
Keystone Rolling Mill ... 180
Kiln, Halberson's Pat ... 538
Kiln, Keurstmann's Pat ... 490
Kiln, Strussholm's Pat ... 371
Kiln, Youngren's Pat ... 347
Kilpatrick's Pat. White Lead Manufacturo ... 59
Kindl's Pat. Rolling Beams ... 514
Kindt Coal Mine, Wyo ... 208
King & Andrews ... 324
King Bridge Co ... 372
King, Gilbert & Warner ... 348
King Mine, Cal ... 540
King's Mt., N. C ... 172
King Solomon Mine, B. C ... 257
King Solomon Mine, Mont ... 566
Kingston Coal Co., Pa ... 160, 208
Kingston Mining School, Ont., 241, 252, 339
Kirchelsen's Pat. Aluminum Solder ... 562
Kirtley Creek Placers, Idaho ... 422
Klamath Placers, Cal ... 301
Klerksdorp & Potchefstroom District, Transvaal ... 401
Klotz's Pat. Blowing Engine ... 275
Kloune's Pat. Furnace ... 131
Kloz's Pat. Zinc Process ... 419
Knight & Couch Coal Co., W. Va ... 400
Knight's Pat. Vaporizer ... 371
Knox, W. E ... 36
Koenig Mine, Cal ... 13
Kohinoor & Donaldson Con. Mg. Co., Colo ... 93
Kolf's Pat. Explosive ... 586
Koneman's Pat. Gas Fuel ... 131
Kootenai Hydraulic Co., Idaho ... 541
Kootenai Mg. Co ... 589
Kott, W. F ... 204
Kreinsen's Pat. Melting Metals ... 107
Kreutzer Sonata Mine, Colo ... 493, 517
Kroehl, G ... 156
Kuby & Frey's Pat. Compressor Pump ... 59
Kuhn, R. D ... 132
Kulage's Pat. Brick Making ... 275
Kunsimann's Pat. Kiln ... 490
Kunz & Huntington, Diamond in Canon Diablo Meteorite ... 394
Kutznohoo Mine, Alaska ... 588
Kuzel's Pat. Chemical Compound ... 35

L

Labrador Surveys ... 281
Lackawanna Iron and Steel Co ... 253, 587
Lackawanna Mine, Minn ... 518
Lacour's Pat. Ore Separator ... 179
Lacy's Pat. Use of Steam in Leaching Ores ... 610
Ladd's Pat., Making Wrought Iron ... 348
La Garde Placers, Wyo ... 304
Lagging for Pipes, Ehrlicher's Pat ... 371
La Grange Hydraulic Mg. Co., Cal ... 158
La Grange Placers, Cal ... 277
Lake Creek Gold Mg. Co., Ore ... 495
Lake Shipbuilding ... 97
Lakeside Nail Mill ... 180
Lake's Pat. Tunneling Machine ... 11
Lake Superior Con. Mines, Minn. 121, 302, 518, 541
Lake Superior Iron Co., Mich. 206, 255, 278, 302, 393, 518, 590
Lake Superior Iron Ores ... 170, 194
Lake Superior Mg. Institute ... 156, 244
Lake Superior Smelting Co ... 525
Lake Superior, Southwestern & Gulf R. R ... 325
Lake of the Woods, Ont ... 352
Lalance & Grosjean Co ... 539
Lambert & Bishop Wire Mill ... 372
Lambert Brothers ... 611
Lambert's Pat. Carburetor ... 323
Lambright Farm Oil, O ... 112
Lamp Support, Simpson's Pat ... 11
Lancaster Mine, Colo ... 373
Lander Mg. Co., Nev ... 63
Lander Mg. Co., Wyo ... 184
Landreth, Olin H ... 563
Lane, C ... 539
Lane, C. D ... 587
Lane's Pat. Tube Drawing ... 35
Langdon & Co ... 564
Lang, Herbert ... 444
Lang, Herbert, Furnace Improvements ... 51
Langlaagte Estate, Transvaal ... 137
Langmaid & Glaisher, *Steam Machinery, Lessons in* ... 123
Lang's Pat., Smelting Ores ... 443
Lannert's Pat. Vapor Burner ... 323
La Plata Goldfields, Map, Colo ... 219
La Plata Mines, Ltd., Colo ... 85
Larrabee, C. S ... 12
Laramie Rolling Mill ... 611
Larson's Pat. Tube Drawer ... 443
Last Chance Mine, Mont ... 591
Last Chance vs. Tyler Mg. Co., Idaho ... 374
Latrobe Steel Works ... 109
Laubmann's Pat. Chemical Compound ... 35
Laurel Hill Colliery, Pa ... 615
Laurel Run Colliery, Pa ... 351
Laurie's Pat. Rolling Mill ... 107
Laurie's Pat. Zinc Oxide Paint ... 155
Lawrence Land Co., Colo ... 337, 435
Leaching Ores with Cyanide, Janin & Merrill's Pat ... 203
Leaching, Use of Steam, Lacy's Pat ... 610
Lead, Afghanistan ... 35
Lead Companies, St. Francois County, Mo ... 207
Lead Deposits, Southwest Missouri ... 75
Lead Ore Market, Joplin, Mo ... Weekly
Lead Pigment, Bartlett's Pat ... 227
Lead Pigment, Charlier's Pat ... 251
Lead Pigment, Gregory's Pat ... 562
Lead Press, Cobb's Pat ... 251
Lead Salts from Ores, Fill's Pat ... 490
Lead Prices ... Weekly
*Lead Slags, Composition ... 81
Lead Smelters in England, Health of ... 82
Lead Treatment, Bartlett's Pat ... 203
Lead, U. S ... 73, 169
Leadville & Chicago Gold Mg. Co, Colo ... 446
Leadville Con. Mg. Co., Colo ... 11, 477
Leadville District, Colo ... 14
Leadville Gold Belt ... 603
Leadville Lime and Fluxing Co ... 86
Leadville Notes, Colo., 158, 181, 254, 326, 373, 398, 421, 446 469, 493, 589
Leadville Smelters, Colo., 37, 86, 181, 254, 301, 467
Lease, Mining ... 1 0
Leases, Coal, Reservations ... 59
Leavenworth Coal Co., Wash ... 40
Leavenworth Home Coal Co., Kan ... 14
Lebanon Rolling Mill ... 300
Lederhoim, E. T ... 587
Le Duc, Alphonse ... 444
Leechman Prospecting Co., Cal ... 110
Leff, P. N ... 491
Left Hand District, Colo ... 229
Legal Tender Group, Mont ... 542
Lehigh Canal ... 63
Lehigh Coal and Navigation Co., 176, 184, 189, 208
Lehigh Traction Co ... 615
Lehigh Valley Coal Co., 56, 63, 112, 470, 543
Lehigh Valley Strike ... 49
Lehigh Valley R. R., Pa ... 232
Lehigh & Wilkes-Barre Coal Co., Pa., 136, 141, 248, 495, 497, 513
Lehigh Zinc Co ... 593
Leisenring & Co., Pa ... 280
Lester Group, Mont ... 494
Legal Tender Mg. Co., Idaho ... 493
Lejeal, A., Aluminum and the Earthy Metals ... 459, 507
Lemaru Mine, Cal ... 492
Lemhi Mg. Co., Idaho ... 14, 613
Lemp's Pat. Electric Metal Working 251, 275, 466
Lemp's Pat. Hammer ... 131
Lennard, J. B ... 252
Lenton Coal Mine, Ind ... 278
Leonard Mine, Cal ... 588
Le Roi Mine, B. C ... 3, 9, 496
Le Sueur's Pat. Electrolytic Cell ... 179, 371
Levac Mines, Ont ... 137
Leveaux, H. E ... 180
Levinstein's Pat., Acid Concentration ... 59
Levinson & Just ... 539
Lewis Coal Conveyor Co ... 397
Lewis' Pat. Miner's Lamp ... 395
Lewisohn, J ... 12
Lewiston, Wyo ... 160
Liability for Breach of Contract ... 580
Liardet's Pat. Safety Explosive ... 11
Libbey, Wm., Jr ... 587
Lichliter & Lear, Mo ... 302, 399
Lichtenwaner & Schmoyer Iron Mine, Pa ... 232
Lidgerwood Mfg. Co ... 467
Lighthouse, Diamond Shoal ... 31
Lillian Mine, Colo ... 37, 254, 349
Lillian Mine, N. M ... 183
Lily of the West, Mont ... 566
Lima Steel Casting Co ... 467
Limekiln, O'Connell's Pat ... 586
Lincoln Gold Mg. Co., N. S ... 544
Lincoln Iron Co., Mich ... 206
Lincoln Mine, Idaho ... 110
Linderman, G. B ... 252
Lindsay, John A ... 204
Link Belt Machinery Co ... 587
Linseed Oil, Substitute ... 323
Lion Hill Mine, Ark ... 85
Lion Placer Mg. Co., Cal ... 325
Lippy's Pat. Pump ... 610
Litchford's Pat. Stone Saw ... 466
Lithium, Preparation ... 82
Lithographic Stone, Arizona ... 104
Little Annie Mg. Co., Colo ... 349, 446
Little Buffalo District, Colo ... 326
Little Charlotte Mine, N. M ... 183
Little Dickey Mine, Colo ... 301
Little Fanny Mine, N. M ... 543, 615
Little Frank Mine, Cal ... 540
Little Giant Mine, Idaho ... 374
Little Josephine Mg. Co., Colo ... 61
Little Kate Mine, Colo ... 493, 589
Little Pittsburg Mg. Co., Mo ... 160, 182, 543
Little Star Oil Co., O ... 328
Little Vinnie Mine, Colo ... 37, 158, 277
Live Oak Phosphate Co ... 326
Llewellyn, S ... 491
Lloyd, David J ... 348
Loader, McTurner's Pat ... 83
Lobdell, George G ... 228
Locust Gap Colliery, Pa ... 470
Locust Spring Colliery, Pa ... 63
Locations, Abandoned, Relocation ... 59
Location of Claims ... 10
Location, Description ... 59
Location, Improvements ... 34
Location, Intersecting Veins ... 346
Location of Mines, Valid ... 371
Location, Right of Possession ... 59
Location, Recording ... 34
Location, Rights in Other Veins ... 59
Location, Subsequent ... 34
Location of Lode ... 34
Lockhart Iron and Steel Co ... 611
Lockhart Mine, Ga ... 254, 373
Lockwood, J. F ... 520
Lockwood, Samuel ... 36
Lode, Discovery ... 34
Lode, What Constitutes ... 107
Logan Iron and Steel Co ... 372
Lohr's Pat. Stone Dresser ... 11
London Bimetallic Conference ... 410
London Stock Market ... Weekly
London Stock Quotations ... Weekly
London Stock Quotations ... 52
Lone Star Mine, Mont ... 255
Longmaid, John, Granulating Slag and Matte ... 76
Longitudes, Annuaire du Bureau ... 51, 147
Longyear Iron Mine, Minn ... 62
Looney Creek Coal Co., Va ... 184
Lookout Mine, Wash ... 520
Lorraine's Pat. Boiler Furnace ... 275
Los Angeles Oil Well, Cal ... 613
Losch's Pat. Pump ... 251
Lost Canyon, Colo ... 277
Loud Mine, Ga ... 422
Louis, H., *Handbook of Gold Milling* ... 531
Louisiana Mg. Co., Idaho ... 493
Louisville Engineers' Club ... 276
Louisville Mine ... 469
Lone Star Mg. Co., Cal ... 45
*Lubricator, Graphite Sight Feed ... 250
Lucas Stone Co., O ... 232
Lucky Bill Mine, Utah ... 616
Lucky Boy Mine, Idaho ... 541
Lucky Dutchman, Nev ... 135
Lucky Joe Mg. Co., Colo ... 493
Lunge's Pat. Nitric Acid Manufacture ... 155
*Lunken Gate Valve ... 10
Lunkenheimer Co ... 156, 612
Lupton, A., *Treatise on Mining* ... 170, 219
Luz de Borda, Mex ... 424
Lychenheim, J., Phosphorus in Coal and Coke ... 222
Lykens Valley R. R. and Coal Co., Pa. 448
Lyman, B. S., *Age of the Newark Brownstone* ... 195
Lyman, B. S, *Some New Red Horizons* ... 603
Lynchburg Coal Co., Va ... 353
Lynch's Pat. Oil Burner ... 323
Lynde, E. C ... 12
Lynen's Pat. Zinc Metallurgy ... 131
Lyons, J. H ... 491
Lysaght's Pat. Rolling Sheets ... 395
Lyte's Pat. Electrolysis ... 347, 466

M

Mabel Mine, Ore ... 519
McAllister Mine, N. M ... 208
MacArthur-Forrest Cyanide Patents, 2, 433
MacArthur's Pat. Cyanide Process ... 347
McCalmont Oil Co., Ind ... 255
McCarrier's Pat. Carburetor ... 227
McClure & Amsler ... 467
McClury's Pat. Quartz Mill ... 35
McConkey Mine, Wash ... 543
McConnell Asbestos Mg. Co., Wyo ... 137
McCosh Steel Co ... 253
McCoy's Pat. Shot Firing ... 395
McCullough Iron Co ... 467
McDaniel, O. M ... 84
McDonald, J. Q., Cyanide Process ... 203
McDonald's Pat. Separator ... 131
McDonough, Thomas ... 611
McDowell Steel Process ... 467
McEachen's Pat. Well Drilling ... 107
McFall Mine, Cal ... 492
McGahan's Pat. Smoke Separator ... 227
McGarrahan, Wm ... 396
McGill University Calendar ... 291
McGregory, W. G ... 180
Mcfloride's Pat. Soldering Lamp ... 275
McInness, Alexander ... 60
McInnis Mine, Minn ... 327
McIntyre Iron Co., N. Y ... 615
McKay's Pat. Magnetic Engine ... 490
McLean Coal Co., Ill ... 398
McLoon Quarry, Me ... 159
McMasters' Pat. Miners' Lamp ... 466
McMillan, Hugh ... 60
McMunn, S. W ... 372
McNamara's Pat. Tunnel Centers ... 610
McNeal Pipe Foundry Co ... 372
McTurner's Pat Loader ... 83
Macarthy's Pat. Kiln ... 371
Macbeth, James & Co ... 109
Macdonald's Pat. Bessemerizing Lead Sulphides ... 155
Mackenzie-Hughes' Pat. Tank Car ... 59
Mackintosh, Hemphill & Co ... 516, 564
Mackintosh Sampler, Utah ... 208
Macungie Furnace ... 60
Magenta Con. Mg. Co., Cal ... 429
Magnesium, Prices ... Weekly
Magnetic Engine, McKay's Pat ... 490
Magnetic Separator Patents ... 436
Magnetizing Iron and Nickel Wire ... 511
Magnolia Mine, Mont ... 15, 135, 159
Mahala Mine, Colo ... 134, 234, 469, 613
Mahanoy City Colliery, Pa ... 593
Mahoning Ore Co ... 399, 518
Mahoning Valley Iron Ass'n ... 13
Mahoning Valley Iron Co ... 491
Maid of Erin Mg. Co., Colo ... 11, 301, 613
Maid & Henriette, Colo ... 110, 446
Maine Mine, Colo ... 134
Malacate Mines, Mex ... 161
Malheur District Ore ... 232
Mammoth Gold Mg. Co., Mont ... 520, 542
Mammoth Mine, Ariz ... 565
Mammoth Mine, Cal ... 398, 613
Mammoth Mg. Co., Utah ... 16, 357, 567
Mammoth Mt., Colo ... 206
Manchester Ship Canal ... 11
Mandich Mine, Cal ... 13
Manganese Determination in Manganese Bronze ... 347
Manganese, Estimation of ... 155
Manganese Ore, Virginia ... 602
Manganese Peroxide, Albright's Pat. 347
Manganese Steel ... 385, 610
Manganese Steel, Hadfield's Pat ... 610
Manhattan Gold Mg. Co., N. M. 183, 231, 256, 351, 375
*Mannesmann, Reinhard ... 413
Manning, Maxwell & Moore ... 612
Manning, W. T ... 156
Manns & Tartarian ... 276
*Manometer, Differential ... 419
Mansfield Group Mg. Co., Colo ... 86
Manual Training Schools ... 170
Manufacturers' Natural Gas Co., Pa. 183
Marble Mt. Co., Cape Breton ... 344
Margerum Mg. Co., Mo ... 38, 111
Marian Lease, Colo ... 158, 230, 301, 326, 398, 493, 613
Marion Mg. Co., Utah ... 352, 592
Mariposa Estate, Cal ... 157
Mark ng Boundary of Claim ... 531
Marquette Range, Mich ... 14
Marquis & Riley Mill, Colo ... 565
Marriott's Pat. Boiler ... 466
Marrs Coal Mg. Co., Neb ... 399
Marsac Mill, Utah ... 222, 256, 616
Massachusetts & Montana Mg. Co., Mont ... 518
Marshall Pass Coal, Colo ... 85
Martin, T. C., *Inventions and Researches of Nikola Tesla* ... 75, 337
Mary Ellen Mine, Wyo ... 304
Mary K. Mine, Mont ... 566
Maryland, Bureau of Industrial Statistics ... 123

Maryland, Coal ... 111
Maryland Coal Co ... 93, 137
Maryland-Delaware Ship Canal ... 510
Maryland Mg. Co., Cal., 157, 229, 331, 373, 492
Maryland Steel Co ... 12
Marx, J. G ... 539
Mason & Barry Co., Portugal ... 568
Mason Mg. Co., Mich ... 111
Mason Reducing Valve ... 202
Mason Regulator Co ... 228, 276
Master Car Builders' Ass'n ... 291, 539
Master Mechanics' Ass'n ... 372, 539
Mastodon Iron Mine, Mich ... 86, 541
Matabeleland, S. Africa ... 401
Mathewson's Pat. Furnace Tap ... 203
Mattes, W. F ... 514
Mattie Mill, Colo ... 134
Matton's Pat. Crane ... 299
Maud S. Mine, N. M ... 615
Maurer, H., & Son ... 397
Mayflower Gravel Mg. Co., Cal., 11, 85, 109, 133, 203, 277, 323, 349, 419, 468, 492, 508
*Mayflower Mine, Cal ... 157, 173, 183, 421
Mayflower Mine, Idaho ... 613
Mayflower Mine, Mont ... 469, 542
Mayflower Mg. Co., Colo ... 134
Mayo, G. A ... 612
Mechanics of Hoisting Machinery ... 243
Mechanics' Lien, Right to ... 251
Mechanics, Technical ... 603
Mechanics' Workshop Companion ... 123
Medium Lode, Colo ... 61
Meech, L. W., Calculation Tables ... 435
Meik, J. & R ... 109
Melcher, C. W ... 467
Melden Mine, Colo ... 349
Melting Metals, Kreinsen's Pat. ... 107
Memphis, Heber Springs & Northwestern R. R ... 445
Mendenhall, T. C ... 611
Mendota Mine, Colo ... 134
Menge, Joseph ... 420
Menifee Mine, Cal ... 229
Mercer Coal Co., Pa ... 64
Mercer, Walter ... 372
Merchant's Pat. Foundry Plant ... 275
Meredith's Pat. Puddling Furnace ... 349
Merriam Colliery, Pa ... 63
Mercur Mg. Co., Utah, 11, 88, 161, 165, 203, 323, 352, 419, 496, 508, 519, 525, 543
Merrick, Frank ... 36, 132
Merrill's Pat. Drop Hammer ... 251
Merritt, Alfred ... 248
"Mesaba" or "Mesabi" ... 505, 555, 579, 601
Mesabi Range Iron Ores ... 484
Mesabi Range Miners, Minn ... 427, 469, 484
Metal Beam Cutter, Cameron's Pat ... 251
Metal Castings, Hiel's Pat ... 203
Metal Cutter, Hammond's Pat ... 299
Metal Drilling, Browne's Pat ... 323
Metal Finishing, Bradley's Pat ... 275
Metal Markets ... Weekly
Metal Cutter, Brandt's Pat ... 490
Metals, Precious, Recovering, Miller's Pat ... 155
Metal Embossing, White's Pat ... 11
Metal Flanging, Carroll's Pat ... 466
Metal Working Machine, Morgan's Pat ... 131
Metal Production, Mills' Pat ... 610
Metal Protection from Corrosion, Buecher's Pat ... 610
Metal, Steel Tool, Eckel's Pat ... 35
Metallhüttenkunde, Handbuch ... 459
Metallic Coating, Cowper-Coles' Pat ... 35
Metallic Cap. Mfg. Co ... 396
Metallic Deposits ... 531
Metallic Oxides, Thofehrn's Pat ... 131
Metal Statistics of the Metallgeschaft, Frankfurt ... 27
Metallurgical Furnace, Allen's Pat ... 155
Metallurgical Plant, Ford's Pat ... 107
Metallurgy, Prof. Tarron ... 435
Metalurgia del Plomo ... 2
Metric Measures in England ... 227
Metropolitan Iron and Land Co., Mich ... 86, 111
Mexico, Coal ... 535
Mexico, Silver ... 88
Mexican Bullion Export Tax ... 323
Mexican Central R. R ... 348
Mexican Mining ... 440
Mexican Mg. Co., Nev ... 63
Mezger, C. A., Magnetic Phenomena in Gold Bearing Slates ... 196
Mica Splitting, Foulds' Pat ... 395
Michigan Engineering Society ... 60
Michigan Girl Mine, Wyo ... 567
Michigan Mining School, 204, 396, 539, 563, 587
Michigan, Salt ... 179
Michipicoten Mine, Ont ... 496, 544
Midas Petroleum Co ... 213, 381
Middleton, G. A. T., *Surveying and Surveying Instruments* ... 291
Middleton, W. B ... 180
Midland Steel Co ... 539
Midnight Mine, Colo ... 279, 326
Midvale Steel Co ... 204, 253
Midwinter Mg. Co., Nev ... 41
Mikado Mine, Colo ... 110
Mikado Mine, Wyo ... 232
Mike & Starr Mine, Colo ... 37, 61, 134
Mile Point, B. C ... 232
Milholland Tube Co ... 563
Miller & Covell's Pat Conveyor ... 59
Miller, John A., *Outline of Quantitative Analysis* ... 1.3, 170
Miller's Pat. Cast House ... 395
Miller's Pat. Conveyor ... 562
Miller's Pat. Recovering Precious Metals ... 155
Millie Iron Co., Mich ... 206
Millionaire Mg. Co., Nev ... 111
*Milling of Gold Ores, Variations in, 174, 199, 461, 486, 511
Millowners' Ass'n, Covington, Ky ... 12
Mills' Pat. Magnesium Production ... 610
Milne's Pat. Fuel Economizer ... 443
Milton's Pat. Furnace ... 299
Milwaukee Malleable Iron Co ... 612
Milwaukee & Trinidad Smelting Co ... 324
Mine Cage, Calero's Pat ... 490
Mine Cage, Davies' Pat ... 371
Mine Cage, Haller's Pat ... 275
Mine Door, Herth's Pat ... 131
Mine Door, Warren's Pat ... 251
Mine Explosions from Grahamite Dust ... 196
*Mine Hill, N. J., Franklinite Deposit ... 197
*Mine Horses, Head Gear ... 58
Mine Inspector's Report, Great Britain ... 531
Mine-owner, Liability ... 568
Mine Props, Creesson's Pat ... 35
Mine Props, Firth's Pat ... 466
Mine Props, France ... 580
*Mine Shaft Fire Doors ... 321
Mine Ventilation ... 435
Mineral Farm, Colo ... 37, 134
Mineral Hill Mg. Co., Cal ... 588
"Mineral Industry," 1893, 73, 481, 505, 507, 530, 531, 555, 579, 603
Mineral Land on Railroad Grant ... 531
Mineral Mg. Co., Pa ... 136
Mineral Production, U. S ... 289
Mineral Resources of the U. S ... 75
Minerals, Mechanical Preparation ... 195
Miners' Dream, Colo ... 389
Miners' Flask, Zweig's Pat ... 371
Miners' Lamp, Breucek's Pat ... 203
Miners' Lamp, Graham's Pat ... 347
Miners' Lamp, McMasters' Pat ... 466
Miners' Lamp Support, Simpson's Pat ... 203
Miners' Lamp, Wolff's Pat ... 562
Miners' Liens ... 443
Miners, Nationality ... 193
Miner's Pick, Hute's Pat ... 460
Miners' Wages, Northumberland ... 395
Minersville Placers, Ore ... 543
Mines, Agreement to Purchase ... 227
Mines, Annuaire des ... 147
Mines, Exemption from Townsite Patent ... 298
Mines, Machinery for ... 75, 99
Mingo Coal Mg. Co., Ky ... 41
Mining Auger, Sergeant's Pat ... 11
Mining Claim, Location ... 531
Mining Claim, Tenants in Common ... 508
Mining Contract, Construction ... 580
Mining Law, Canada ... 352
Mining Laws, Guide to ... 195
Mining Liens ... 275
Mining Manual, Skinner's ... 99, 195
Mining Machinery, Exports ... 481
Mining Machine, Beury's Pat ... 107
Mining Machine, Jeffrey's Pat ... 275
Mining, Prospective Profits ... 580
Mining Rights, Deed ... 322
Mining Royalties ... 353
Mining on School Lands ... 82
Mining Stock Market, Boston, in 1893 ... 129
Mining Stock Market, San Francisco, in 1893 ... 150
Mining Stock Markets ... Weekly
Mining Tool, Hardscog's Pat ... 490
Mining, Treatise on ... 170, 219
Minneapolis City Report ... 267
Minneapolis Engineers' Club ... 108
Minneapolis Mine, Mont ... 542
Minnesota Canal Co ... 324
Minnesota Furnace Co ... 492
Minnesota Iron Co., 11, 62, 134, 278, 302, 350, 469, 477, 494, 518, 541, 566, 590, 614
Minnesota Mine, Cal ... 205
Minnesota Mine, N. M ... 183
Minnesota Con. Mg. Co., S. Dak ... 156
Minnesota University ... 563
Mint, British ... 523
Mint, U. S ... 19, 43, 68, 75, 116, 163, 379
Missabe Mt., Minn ... 159, 255
Mississippi Mine, Idaho ... 14
Missoula Placer Co., Mont ... 374
Missouri Coal ... 177
Missouri Geological Survey, 82, 265, 298, 338, 457, 529
Missouri Mineral Exhibit at Chicago, 28, 74
Missouri Mg. Club ... 611
Missouri River Surveys ... 292
Missouri School of Mines ... 420, 573
Mitchell Iron Mine, Mich ... 302
Mitchell, P ... 321
Mixer & Dubois, Determination of Iron in Ore ... 342
Mixing Plant, Edison's Pat ... 107
Modoc Gold Mg. Co., Colo ... 469
*Moeller, W. H., Hoisting Mine Caps ... 489
Moeller, W. H., Mercur Gold Deposits ... 51
Moffatt, D. H ... 563
Moffatt & Jeffrey, N. M ... 256
Mogollon District, N. M ... 375
Mohawk Mine, Ari ... 373
Mohegan Mine, Mont ... 350
Moissan, H., Artificial Diamonds ... 241
*Moissan Electric Furnace ... 79
Moldenhauer's Pat. Precipitating Metals ... 35
Molding Machine, Edgar's Patent ... 347
Molding Methods, Adams' Pat ... 610
Molega District, Nova Scotia ... 544
Mollie Gibson Con. Mg. Co., Colo ... 11, 37, 49, 134, 493
Monchicourt, M ... 252
Monetary Conference, International ... 43
Money of the United States ... 51, 363
*Mongst Mines and Miners ... 75
Monitor Tunnel, Nev ... 111, 183, 327, 350
Monroe & Son ... 516
Monson Slate Co., The ... 278
Montana College ... 350
Montana Copper Companies ... 553
*Montana Iron Works, Hoisting Engine ... 55
Montana Mg. Co., 15, 38, 87, 235, 374, 494, 577, 580, 590
Montana Mining Stocks ... 202
Montana Ore Purchasing Co ... 399
Montana Silver Mine Dividends ... 115
Montana Society Civil Engineers, 84, 396, 491
Monticello Mg. Co., Cal ... 429
Monte Cristo Mg. District, Wash., 400, 496
Montgomery, H., Aluminum Phosphate Mineral ... 291
Montgomery Iron Co ... 13
Montgomery Lead and Zinc Mg. Co., Mo ... 134
Montreal Mine, Wis ... 16
Montrose Coal Mg. Co., Colo ... 373
Moodie Gold Mg. Co, Transvaal ... 88
Moore, C. W., *Practical Guide for Prospectors* ... 291
Moore, Dr. Gideon B ... 397, 445
Moorhead Brothers & Co ... 60, 563
Moore's Pat. Ore Grinder ... 610
Moose Iron Mine, Minn ... 62
Moose Mg. Co., Colo., 203, 206, 323, 326, 419, 508, 525
Moosic Mt. Coal Co., Pa ... 351
Morceau, G., Study of Metallic Deposits ... 531
Morehead Brothers & Co ... 85
Morel's Pat. Crusher ... 514
Morgan Gold Mine, Wyo ... 352
Morgan, Mg. Co., Cal ... 405
Morgan Pump and Conveyor Co ... 228
Morgan's Pat. Ingot Charging ... 562
Morgan's Pat. Metal Working Machine ... 131
Morgan's Pat. Pump ... 179
Morgan's Pat. Tumbling Barrel ... 59
Morison's Pat. Boiler ... 419
Morning Mg. Co., Idaho ... 110, 589
Morning Star Drift Mg. Co., Cal., 11, 107, 203, 419, 508
Morning Star Mine, Colo ... 429, 517
Morongo Gold Mg. Co., Cal., 180, 229, 517
Morris & Bailey's Pat. White Lead Process ... 107
Morris Iron Mg. Co., Ala ... 181
Morris Ridge Colliery, Pa ... 112
Morris & Williams' Pat. Pickling Iron Plates ... 83
Morrison's Pat. Brick Kiln ... 83
Morrison's Pat. Electrode ... 19
Morrison's Pat. Rolling Mill Guide ... 562
Morrison's Pat. Tank Furnace ... 419
Morse, C. H., *Leadville Gold Belt* ... 555
Morse Iron Works Co ... 564
Morse's Pat. Separator ... 155
Mosher's Pat. Boiler ... 251
Mosquito Coast Goldfields ... 294
Moss, Heikes & Co ... 36, 296
Moss Hill Mg. Co, Cal ... 4 9
Moteurs a Gaz et a Petrole ... 75
Motor Carriages, Exhibition in Paris ... 458
Moulton Mg. Co., Mont., 69, 135, 203, 323, 419, 508
Mound City Mg. Co, Mo ... 111
Mound Park Mg. and Land Co., Colo ... 601
Mountain Boomer, B. C ... 544
Mountain Green Mg. Co., Nev ... 327
Mountain Iron Mine, Minn ... 38, 69, 138
Mountain Iron & Rathburn, Mine ... 326
Mountain Lion Mine, Ore ... 592
Mountain Meadow Mine, Mont ... 374
Mountain Mg. Co., Mont ... 303
Mountain Railroad, New ... 251
Mountain Side Mine, Mont ... 470
Mountain Valley Coal Co., Ala ... 301
Mountain View Mine, Mont ... 542
Mountain's Pat. Wiremaking ... 179
Mt. Diablo Mg. Co., Nev ... 11
Mt. George Mine, Cal ... 13
Mt. Jefferson Gold Mg. Co., Cal ... 291
Mt. Lookout Colliery, Pa ... 519
Mt. Pleasant Iron Mine, N. J ... 251
Mt. Powell Mg. Co ... 141
Moweaqua Coal Co., Ill ... 84
Mowry Mine, Ari ... 205
Mubleman, M., *Money of the U. S.*, 51, 363
Mulford, Robert ... 228
Mullan Mine, Idaho ... 350
Muller, Nolan's Pat ... 83
*Muller's Pat. Boiler ... 538, 583
Muller's Pat. Grate ... 83
Mullin's Pat. Gasmaking ... 275
Mummery's Pat. Hydrocarbon Burner ... 299
Muncie Iron and Steel Co ... 244
Murdock's Pat. Gold Washer ... 466
Murray, Dougal & Co ... 611
Murphy's Pat. Boiler ... 562
Murray-Heinze Suit, Mont ... 15
Murray Placers, Idaho ... 182
Murray's Pat. Hoist ... 35
Murraysville Oil Co., W. Va ... 184
Murray, W. W ... 37
Mustang Mine, Colo ... 206
Myrtle Pt. Mg. Co., Ore ... 543
Mysore Gold Mg. Co., India ... 88, 376
Mystery Mine, Wash ... 616
Mystic Mg. Co., Mo ... 86

N

Napa Con. Mg. Co., Cal., 11, 285, 323, 419, 508
Naphthal Trisulphonic Acid, Kazel's Pat ... 35
Narjot's Pat. Gas Engine ... 227
*Nason, F. L., Franklinite Deposits, Mine Hill, N. J ... 197
*Nason, F. L., Pyrites Deposits, Louisa County, Va ... 415
Natal & Transvaal R. R., S. Africa ... 209
Natal Mines, S. Africa ... 424
National Belle Mine, Colo ... 613
National Electric Light Ass'n ... 228
National Iron Roofing Ass'n ... 60
National Iron Works ... 564
National Lead Mg. Co., Ill ... 302, 398
National Lead Co ... 152, 157, 501, 525
National Mg. and Milling Co., Md ... 302
National Mg. Co., Mich ... 422
National Mg. Co., Mo ... 135
National Rolling Mill ... 60
National Tube Works ... 85, 132, 467
Navy, Torpedo-boat ... 419
Naylor's Pat. Hydraulic Press Governor ... 107
N. B. Mine, Mont ... 279
Neff's Pat. Pump ... 83
Negaunee Iron Co., Mich ... 62
Nellie Bly Mine, Colo ... 37, 326
Nellie Mine, Idaho ... 182
Nelson Hydraulic Co., B. C ... 329
Nelson, L. W ... 491
Nelson, M ... 514
Nelson Mine, Colo ... 493
Nelson Mg. Co., Ore ... 495
Nelson Tunnel and Mg. Co., Colo ... 206
Nesbitt, W. M ... 300
Nesmith's Pat. Blast Furnace ... 35
Netherlands Phosphate Co., Fla ... 230
Nevada, Bullionville and Ferguson Districts ... 106
Nevada City Tunnel, Colo ... 277
Nevada Mine Production ... 87
Nevada, Mining in ... 77
Nevada Salt and Borax Co ... 45
Nevada Valley Mg. Co., Mont ... 231
Nevill's Pat. Pump ... 373
Newark Brownstone, Age ... 195
Newberry Furnace ... 85
Newberry, Prof. John Strong ... 84
New Caledonia ... 161
Newcastle Coal Mine, N. B ... 376
New Central Coal Co., Md ... 69, 89, 104
New Empire Slate Co., N. Y ... 87
New England Granite Manufacturers' Ass'n ... 205, 300
New Era Iron Works ... 587
New Gold Hill Co., N. C ... 93
New Jersey Steel and Iron Co ... 204
New Jersey Zinc and Iron Co ... 276
New Mexico, Gold and Silver ... 39
New Mexico Mg. Exchange ... 280
New Mexico, Zinc Ores ... 732
New Philadelphia Iron and Steel Co ... 372
New South Wales Mine Report ... 555
Newton Mine, Colo ... 134
Newton Rubber Co ... 372
Newton Slate Quarry, N. J ... 495
Newton's Pat. Furnace ... 107
New Soddy Coal Co., Tenn ... 16
New York Academy of Sciences ... 204
New York Banks ... Weekly
New York Belle Mine, Mont ... 183
New York Belting and Packing Co., 539, 587, 602
New York Canals ... 11
New York Coal Market ... Weekly
New York Iron Market ... Weekly
New York Metal Markets ... Weekly
New York Mining Stock Market, Weekly
New York Mining Stock Quotations, Weekly
New York Hydraulic Press Brick Co ... 587
New York Gold Hill Mg. Co., Cal ... 429
New York & Last Chance, Colo., 38, 517, 613
New York Mine, Wyo ... 257
New York Mg. Co., Colo ... 517
New York, Mobile & Mexican Steamship Co ... 300
New York-Philadelphia Ship Canal ... 439
New York Railroad Club ... 180, 343
New York State Electrical Co ... 318
Niagara Falls Hydraulic Works ... 97
Niagara Mg. Co., Utah ... 160, 184
Niagara Water Supply Co ... 61
Nicaragua ... 195
Nicaragua Canal Co ... 35, 54, 420, 438, 506
Nicaragua, Gold-fields ... 294
Nichols Mine, Ga ... 373
Nicholson, F ... 587
Nichols, Ralph ... 252
Nichols, T. B., Iron Works of Samaca, Colo ... 556
Nickel Coins ... 147
Nickel-Copper Ore Treatment, Richardson's Pat ... 227
Nickel, New Caledonia ... 341
Nickel Ores, Sudbury, Can ... 99
*Nickel Region, Sudbury, Ont ... 245
Nickel Refining, Richardson's Pat ... 371
Nickel, Silesia ... 514
Nickel Steel, Krupp Works ... 323
Nickerson's Pat. Hydrocarbon Burner ... 466
Nicola Coalfield, B. C ... 496
Nicol Coal Co., Ill ... 86
Nieustadt's Pat. Iron Sand Treatment ... 514
Niewerth's Pat. Electric Furnace ... 83
Niles-Augusta Mine, Colo ... 326
Niles Tool Works ... 587
Nilson's Pat. Boiler ... 323
Nine-Mile Mg. Co., Mont ... 472
Nitrate Rys. Co., Chile ... 496
Nitrate Treatment, Darling's Pat ... 299
Nitric Acid, Concentrating, Fesch's Pat ... 323
Nitric Acid Manufacture, Lunge's Pat ... 155
Nitro-Compound, Schupphand's Pat ... 179
Noble Five Group, B. C ... 496
Noble's Pat. Pump ... 371
Nolan's Pat. Muller ... 83
Norcross' Pat. Stone Saw ... 35
Norfolk & Western R. R. Co ... 320, 357
Norman Mine, Minn ... 327
Norrie Iron Mine, Mich., 111, 182, 328, 422
Northampton Slate Co., Pa ... 160
North Carolina Iron Ores, 315, 435, 490, 555
North Dakota, Coal ... 327
North of England Mining Institute ... 611
Northern Gold Mg. Co., Ont ... 233
Northern Michigan Marble Co ... 230, 422
Northern Pacific Coal Co., Oregon ... 448
Northern Spy Mg. Co., Utah ... 543
North Mexican Mg. Co ... 93
North Pole Mg. Co., Ore ... 63, 95
North Poorman, Idaho ... 134
North, S. H ... 568
North, S. H., Coal Dust Explosions ... 273
North Star Mg. Co., Cal ... 11, 429, 565
Northwestern Contract Co., Minn ... 590
Northwest Railway Club ... 132, 204
Norton Iron Works ... 491
Norway, Iron Ore ... 376
Norwood Mine, Mont ... 183
*Nottingham Colliery, Air Compressor Plant ... 125
Nourse's Pat. Coating Iron ... 275
Novaculite, Ark ... 325
Nova Scotia Coal ... 97, 122, 123, 171
Nova Scotia Gold ... 145
Nova Scotia, Mineral Production ... 55
Nova Scotia Mines, Report ... 115
Nova Scotia Mg. Society ... 252, 587
Nova Scotia Mg. Co., Mont ... 183
Nowell Gold Mg. Co., Alaska ... 13
Nowell Mines, Alaska ... 397

Noye's Patent Brick Kiln..... 131
Nugget Gold Mine, N. C..... 87
Nutford Quarries, N. H..... 303
Nuudydroog Gold Mg. Co., India..38, 376
Nutcracker Mine, B. C..... 64
•Nut-lock, Young's..... 130

O

Oak Hill Quarry, Me..... 614
Oak Tree Mg. Co., Mo..... 38
Oakland Mfg. Co..... 564
Oakfield Plaster Co., N. Y..... 615
Obelisk Concentrator, Mont..... 542
Ocala & Blue River Phosphate Co., Fla..... 421
Ocampo Mg. District, Mex..... 171
Ocean Whaleback..... 338
Occidental Con. Mg Co., Nev., 39, 63, 111, 183, 350, 375, 519, 567
O'Connell's Pat. Limekiln..... 586
Oddy's Pat. Hardening Wire..... 347
Odell, George..... 372
Odell Mine, Mont..... 566
Odell's Pat. Silver Plating..... 203
O'Doherty, D..... 557
O'Donnell's Pat. Stonecutter's Hammer..... 107
Ohio Coal Mines.....63, 87, 112, 135
Ohio Coal Operators' Assn..... 495
Ohio Institute Mg. Engineers..... 84
Ohio Iron Co., Minn..... .206, 614
Ohio Iron Mine, Minn....302, 374, 494, 590
Ohio Mg. Co., Minn..... 566
Ohio Mg. Co , N. M..... 206
Ohio & Pennsylvania Coal Co., O..... 257
Ohio River Oil Co., W. Va..... 184
Ohio Ship Canal..... 342
Ohio Society of Engineers..... 108
Ohio Steel Co..... 343
Ohio-Tennessee Coal Co., Tenn..... 184
Ohio & Western Coal and Iron Co., O. 328, 351
Ohlin, Axel..... 587
Ohlsson's Pat. Separator..... 610
Oie's Pat. Excavator..... 461
Oil Atomizer, Edwards' Pat..... 35
Oil Burner, Baldwin's Pat..... 490
Oil Burner, Holdridge's Pat..... 323
Oil Burner, Lynch's Pat..... 323
Oil Carrier, Large..... 438
Oil Exports..... 61, 157, 277, 372, 468, 568
Oil Tank Steamers..... 131
Oil Fuel, Columbian Exposition..... 514
Oil Lamps, Safety Device..... 322
Oil Leases..... 178
Oil Lease, Construction..... 484, 508
Oil Lease, Partnership..... 58
Oil Lease, Rights in..... 460
Oil Purifier, Hogan's Pat..... 131
Oil Rates, Railroad..... 470
Oil, Russia..... 50, 52
Oil Storage, Snell's Pat..... 466
Oil Tank Steamers..... 31
Oil Trade..... 13
Oil Well Casing, Storer's Pat..... 466
Oil Wells, New..... 253, 445
Oil Well Supply Co..... 228, 445
Ola Mg. Co., Idaho..... 302
Olcott, W. J..... 156
Old Abe Mine, N. M..... 519
Old Bridgeport Mine, N. S..... 376
Old Charlie Mine, S. Dak..... 400
Old Colony & Interior Canal Co..... 324
Old Dominion Copper Co., Ari..... 85
Old Dominion Mg. Co., Wash..... 88
Old Faithful Mg. Co., Mont..... 541
Old Jahney Mine, Colo..... 510
Old Jordan & Galena Mg. Co., Utah. 208
Ole Olsen Mine, Ore..... 592
Olga Lease, Colo..... 565
Olga Mine, Colo..... 110
Olive Woodman Mine, Ore..... 63
Olive Branch Mine, Colo..... 134
Oliver Iron Co., Minn.....62, 371, 494, 518, 566, 614
Oliver Iron and Steel Co..... 180
Oliver & Roberts..... 36
Oliver's Pat., Handling Billets..... 610
Omaha & Grant Smelting Co..133, 157, 213
Omaha Mg. Co., Cal.,11, 107, 203, 323, 419, 508
Omega Mg. Co., S. Dak..... 519
Oneida Mine, Mont..... 279
O'Neill's Pat. Spike Making..... 610
Onondaga Mine, Nev..... 135
Ontario Bureau of Mines..... 505
Ontario District Mining Schools..... 491
Ontario Geology..... 435
Ontario Mines.....76, 220, 520
Ontario Mine, Idaho..... 14
Ontario Mg. Co., Mont..... 422, 542
Ontario Mg. Co , Utah, 61, 136, 256, 375, 423, 448, 519, 567, 616
Ontario Mg. Institute..... 467
Ontario Mining Laws..... 385
Ore Roaster, Storey's Pat..... 299
Oo egum Gold Mg. Co., India..88, 376, 471
Oothout, E. A..... 132
Opals, New South Wales..... 440
*Open-hearth Steel Furnaces..... 442
O hir Con. Mg. Co., Utah..... 543
Ophir Mg. Co., Colo..... 301
Ophir Mg. Co., Nev..... 63, 350, 375
Orange Canal, Fla..... 277
Ord District, Cal..... 388
Ore Car, Enamminger's Pat..... 75
Ore Concentrator, Rigel's Pat..... 251
Ore Concentrator, Seymour's Pat..... 131
Ore Concentrator, Waitt's Pat..... 131
Ore Grinder, Moore's Pat..... 610
Ore Grinder, Wallwork's Pat..... 347
Ore Roaster, Brown's Pat..... 466
Ore Roaster, Davis' Pat..... 538
Ore Roaster, Walker's Pat..... 299
Ore Separator, Doerflinger's Pat..... 371
Ore Separator, Foley's Pat..... 347
Ore Separator, Lacour's Pat..... 179
Ore Separator, Stuckey's Pat..... 371
Ore Transfer, Collins' Pat..... 83
Ore Treatment, Bartlett's Pat..... 59
Ore Treatment, Taussig System..... 130
Ore Treatment, Rice's Pat..... 35
*Ore Washers at Longdale, Va..... 223
Oregon Gold Mg. Co., Ore..... 39, 112
Oregon Iron Co., Ore..... 351
Oro Fino Mine, Cal..... 13
Oro Fino Mine, Idaho..... 517
Oro Fino Mg. Co., Mont..... 255, 303, 614
Oro Mg. Co. Mex..... 400
Oronogo District, Mo..... 541
Oronogo Tunnel, Wyo..... 160
Orr's Mt. Quarry, N. B..... 592
Orton, Edward, Jr..... 587
Osborne Hill Co., Cal..... 588
Osborn's Pat. Piston Packing..... 538
Osceola Con. Mg Co., Mich. .213, 248, 278, 326
Osceola Mg. Co. Mich..... 11
Osceola Mg. Co. Nev..... 160
Ostberg's Pat. Stone Dresser..... 59
Ostberg, M. *Thermo-Dynamos of Reversible Cycles*..... 75
Ouray Union Mg. Co., Colo..... 4 9
Ouro Preto Gold Mg. Co., Brazil.. 16, 40, 513
Ovee Mine, Colo..... 589
Overholser's Pat. Govenor for Separators..... 237
Owen & Porter Mine, N. M..... 208
Owl Hollow Mg. Co., Ga..... 254
Oxygen Making, Fanta's Pat..... 466
Oxygen, Spectra..... 562
Ozone Making, Poulson's Pat..... 131
Ozone Production..... 126
Ozone Production, Andreoli's Pat..... 59

P

Paarl Central Mg. Co., Transvaal..... 353
Pace's Pat. Brick Machine..... 490
Pacific Coast Borax Co..... 11
Pacific Coast Technical Society 132, 324, 444, 515
Pacific Gold Mg. Co., N. M.....207, 351
Pacific Oil Co., Cal..... 45
Pacific Rolling Mill Co..... 253
Packer Colliery, Pa..... 443, 448
Pactolian Quartz Mg. Co., Cal..157, 519
Paddock, J. H..... 324
Page, W. N., Genesis of the Thunderstorm..... 412
Paige Tube Co..... 563
Painsfoe Chemical Co..... 300
Palmarejo Mg. Co., Mex..... ....21, 471
Palmer Cement Co..... 564
Palmer, C. H..... 12
Palmetto Phosphate Co., Fla..... 589
Palton Coal Mine, Pa..... 87
Pamely, C., *Colliery Manager's Handbook*..... 99
Pamphilon's Pat. Crusher..... 107
Panama Canal..... .246, 323
Pan-American Ry..... 179
Panuleillo Mg. Co., Chile..... ....93, 471
Parafulmini..... 603
Pardee & Co., Pa..... 615
Paris Stock Market..... Weekly
Paris Stock Quotations..... Weekly
Parker, R. A..... 324
Parker's Pat. Electrolysis..... 155
Parker's Pat. Water Wheel..... 586
Parke's Pat. Heating Compressed Air..... 83
Parkes' Pat. Rope Haulage..... 443
Parkhurst, C. D, *Dynamos and Motors for Amateurs*..... 123
Parkinson, John..... 420
Parkinson's Pat. Permanganate Block..... 227
Parkinson's Pat. Steel Making..... 11
Park-Regent Mine, Colo..... 589
Parliamentary Tactics and Rules for Debate..... 98
Parmelee Mg. Co., Ga..... 325
Parrot Mg. Co., Mont..... 11
Parsons, W. B..... 587
Patent Infringement..... 75
Patent Law, Proposed Changes..... 107
Patent Office Rules, Changes..... 273
Patents, German..... 225
Patterson's Pat. Conveyor..... 107
Pattison, M. M., Alchemical Essence and the Chemical Element..... 363
Paving, Cast Iron..... 131
Pawnee Coal Co., Ill..... 86
Pay Rock Mine, Colo..... 134
Peabody Gold Mg. Co., Wash..... 113
Pearce, Richard, Cripple Creek Gold. 271
Pea Ridge Coal Co., Ill..... 278
Pearl Mg. Co., W. Va..... 375
Peat Beds, Kennet Valley..... 538
Pechin, S. C..... 515
Pedrick & Ayer..... 492
Pedro Mine, Mont..... 614
Peele, R., Jr., Silver Mines of Coiquechaca..... ....78, 100
Peerless Jennie Mg. Co., Mont..... 87
Pelican Mine, Colo..... 134
Pelkey's Pat. Metal Molding..... 514
Pelletan, A., *Traite de Topographie*. 27
Pell's Pat. Boiler..... 35
Penn Gas Coal Co , Pa..... 64
Penn Iron Co., Mich..... 21, 206
Pennsylvania Bolt and Nut Works, 204, 276
Pennsylvania Canal..... 280
Pennsylvania Coal Co..... ....351, 501
Pennsylvania Furnace Co..... 516
Pennsylvania Geological Survey, Maps..... 603
Pennsylvania Oil Co., Wyo..... 134
Pennsylvania R. R. Co., 209, 233, 241, 248, 501, 514
Pennsylvania Salt Co..... 309
Pennsylvania Slate Co..... 160
Pennsylvania State College..... 123, 180
Pennsylvania Steel Casting Co..... 617
Pennsylvania Steel Co....276, 354, 467, 516
Penobscot Mine, Mont..... 399
Penokee & Gogebic Con. Mg. Co., 45, 62, 134, 270
Penokee Iron Co..... 61
People's Coal Co., Colo..... 229
People's Iron Works..... 491
People's Party Mine, Mont..... 518
Peoria Mg. Co., Ind. Ter..... 182
Perak Tin Mines..... 231
Percy Chester Con. Mg. Co., Colo.... 326
Perego vs. Silver King, Utah..... 64
Permanganate Block, Parkinson's Pat..... 227
Perry Coal Borings, Me..... 614
Perschl's Pat. Metal Resinates..... 586
Persian Bank Mg. Co., Persia..... 184
Peru, Nitrate..... 16
Peters, Edward D..... 611
Peters' Pat. Blasting Cartridge..... 35
Peters' Pat. Gas Manufacture..... 275
Petraeus' Pat. Refining Bullion..... 203
Petroleum, Caucasus..... .....270, 514
Petroleum, China..... 323
Petroleum Distilling, Wauklyn's Pat. 610
Petroleum Fuel, Russian Railroads.. 490
Petroleum, Great Britain.....178, 232, 329
Petroleum, India..... 127
Petroleum, Java..... 441
Petroleum, Russia..... 50, 52
Pettebone Colliery, Pa..... 470
Pettigrew's Pat. Still..... 610
Peuchen's Pat. Sulphuric Acid Concentration..... 203
Pewabic Iron Co., Mich....86, 159, 469, 590, 614
Peyton, G. S..... 515
Phares' Pat. Kiln..... 371
Pharmacist Mg. Co., Colo ...11, 14, 37, 421
Phi Kappa Mg. Co., Idaho..... 422
Philadelphia Engineering Works.204, 616
Philadelphia Engineers' Club ..36, 61, 108, 156, 228, 252, 324, 420, 467, 539, 563, 611
Philadelphia Mg. Stocks..... ..Weekly
Philadelphia & Reading Co..17, 25, 39, 41, 49, 113, 136, 181, 208, 209, 233, 304 351. 361, 399, 409, 425, 467, 519, 602, 617
Philadelphia Smelting Co..... 13
Phillips' Pat. Drill Jar..... 35
Phillips, W. B., North Carolina Iron Ores..... 490
*Phillips, W. B., Phosphate Rocks of Tennessee..... 417
*Phœnix Iron Co., Testing Machine.. 5
Phœnix Mine, Ore..... .....63, 495, 543, 567
Phœnix Coal Co., O..... 208
Phœnix Iron Works..... 36
Phœnix Reduction Co., Nev 135, 327
Phosphate, Algeria..... 445
*Phosphate Beds, Tennessee..... 366, 417
Phosphate, Maury County, Tenn..... 448
Phosphate Mines, S. C..... 232
Phosphate Treatment, Guild's Pat... 83
Phosphate Treatment, Hughes' Pat.. 155
Phosphate Treatment, Rose's Pat ... 461
Phosphatic Fertilizers, Gregory's Pat. 227
Phosphor-Bronze Smelting Co..... 612
Phosphorus in Southern Iron..... 145
Photograph Co., Chicago..... 539
Photography and Mining Reports.... 27
Picher Lead Co., Mo..... 182
Pickands, Mather & Co..... 587
Pickling Iron Plates, Morris & William's Pat..... 83
Piccock's Pat. Air Valve..... 59
Piedmont Mineral Co..... 112
Piedras Negras Coal Mine, Mex..... 448
Piegan Mine, Mont..... 299, 374, 399, 566, 611
Pierce City District, Idaho..... 350
*Pig Iron Breaker, Martin & James.. 177
Pihuamo Placers, Mex..... 329, 544
Pike's Peak Mine, Colo..... 14
Pile Preserving, Sudden's Pat..... 11
Pilgrim Mg. Co., Colo..... 565
Pinder, J. W..... 276
Pine Forest Mine, Colo..... 37
Pine Grove Furnace..... 587
Pine Shade Mine, Colo..... 158
Pine's Pat. Car Dump..... 179
Pinetuckey Mg. Co., Ala..... 301, 421
Pingel's Pat. Concentrator..... 251
Pinon Mt. Mine, Cal..... 229
Pinto Mt. Mine, Cal..... 229
Pioneer Mine, Minn 469, 541, 568
Pioneerville Gravel Gold Co., Idaho.. 182
Pipe, Broken, in a Mine..... 462
Pipe, Concrete, Ransome's Pat..... 203
Pipe, Machine, William's Pat..... 371
Pipe Making, Ransome's Pat..... 347
Pipe Making, Wylie's Pat..... 35
Pipe, Sheet Metal, Hamlin's Pat..... 395
Pipe, Wood, Wheeler's Pat..... 371
Pipestone Placer Mont..... 591
Piston Packing, Osborn's Pat..... 538
Pittsburg Boiler Scale Resolvent Co. 348
Pittsburg Bridge Co.....204, 316, 372, 491
Pittsburg Coal Co., Iowa..... 86
Pittsburg Coal Market..... Weekly
Pittsburg Coal Mines..... 87
Pittsburg Coal Trade in 1893..... 8
Pittsburg Iron Market..... Weekly
Pittsburg Iron Trade in 1893..... 8
Pittsburg & Lake Angeline Mg. Co., Mich..... .....375, 417
Pittsburg, Marion & Chicago Ry..... 39
Pittsburg Mine, Cal..... 349
Pittsburg Mg. Stocks..... Weekly
Pittsburg Reduction Co..... 61, 209
Pittsburg & Tennessee Copper Co., Tenn..... 16
Pittsburg & Wheeling Coal Co., Pa.. 208
Pittsburg Wire Co.....60, 109, 563, 611
Placer Claims, Location..... 274
Placer County, Cal..... 110
Placer Mines, Rocky Mts..... 577
Placer Mining, Revival..... .506, 601
Placer No. 91, Wash..... 113
Placet's Pat. Electrolysis..... 466
Plating Metal, Skinner's Pat..... 35
Platt Iron Mine, Mich..... 62
Platt, James..... 108
Pleasant River Granite Co., Me..... 469
Pleasant Valley Coal Co., O..... 328
Pleasant View Mine, N. M..... 351
Plumas Eureka Mg. Co., Cal..... 11
Plumbing, American..... 967
Plummer's Pat. Boiler..... 179
Pocahontas Coal Co., Va..... 381, 448
Pocahontas Coal fields..... 196, 222
Pocahontas Mine, Colo..... 349
Polaris Mg. Co., Mont.... 86, 135, 302, 357, 566
Polar Star Mine, Colo..... 14
*Polishing Wheel, Compress..... 322
Political Economy of Natural Law... 147
Polivka's Pat. Kiln..... 466
Pomeroy's Pat. Gas Machine..... 323
Pomona Mg. Co., Cal..... 301
Pond Machine Tool Co..... 204
Pontiac & Mesnard Mg. Co., Mich.... 206
Ponupo Mg. Co , Cuba..... 160
Pony District, Mont..... 350
Poole's Pat. Blower..... 179
Poorman Con. Mg. Co., Idaho.. 146, 265, 338, 434, 435
Poorman Mine, Idaho..... 302
Poorman Mines, Ltd , Idaho..... 134
Poorman Mg. Co , Mont..... 15, 568
Poorman Mg Co., Nev..... 111, 207
Population, Australasia..... 514
Populist Mine, Colo..... 349
Porcelain Kilns, Petroleum for Firing 561
Portage Lake Canal Lands, Mich.... 278
Portland Chemical and Phosphate Co., Fla..... 446
Portland Mg. Co., Cal.....181, 373, 517
Portland Rolling Mill..... 12
Port Royal Coal Co., O..... 208
Potash Alum. Heibling's Pat..... 610
Potato Retort..... 610
Potosi Silver Mg. Co., Nev.. 183, 207, 237, 279, 351, 375, 423
Potter's Pat. Purifying Iron Ores.... 395
Pottery and Porcelain of the U. S.123, 243
Pottstown Iron Co.....184, 204
Pottsville Iron Works.....60, 132, 467. 539
Poulin Mine, Mont..... 57, 542
Poulson's Pat. Making Ozone..... 131
Powder, Smokeless..... 275
Powell, John Wesley..... 433
Powell, William, Co..... 157
Power Hammer, Fox's Pat..... 141
Power Hammer, Howard's Pat..... 107
Power Hammer, Sweeney's Pat..... 179
Powhattan Mfg. Co..... 324
Pratt, N. P..... 420
Pratt's Pat. Hand Hole Plate..... 371
Precious Metals, Del Mar Statement 146
Precip tate Collector, Fraser's Pat.... 83
Precipitating Metals, Hirsching's Pat. 107
Precipitating Metals, Moldenhauer's Pat..... 35
Prendergast, R.....300, 515
President Carnot..... 601
Preston, Robert E..... 60
Price Mine, Ala..... 468
Price's Pat. Pump..... 347
Price, Rodman M..... 544
Price & Mayer Phosphate Mine, Fla. 421
Prices, Current..... Weekly
Prickly Pear Placers, Mont..... 302
Primrose Colliery, Pa..... 448
Princess Mg. Co., Colo 37, 189, 229
Prize Mine, Mont..... 566
Proctor Coal Co., Ky..... 494
Producers' & Refiners' Oil Co , Pa.... 304
Prospectors' Guide..... 291
Providence Mg. Co., Cal..... 177
Prussian Mine, Colo..... 325, 373
Prussian Railroads, American Coal Cars for..... 266
Puddling Furnace, Meredith's Pat... 347
Puddling Furnace, Smith's Pat..... 466
Pueblo Smelting and Refining Co., Colo..... 446
Pulverizer, Elliott's Pat..... 83
Pulverizer, Fuller's Pat..... 323
Pulverizer, Griffin's Pat..... 227
Pulverizer, Hunter's Pat..... 35
Pulverizer, Hunt's Pat..... 347
Pulverizer Roll, Griffin's Pat..... 562
Pulverizer, Tornaghi's Pat..... 229
Pulverizer, Toy's Pat..... 562
Pulverizer, Traver's Pat..... 59
Pump, Brown's Pat..... 490
*Pump, Centrifugal, with Electric Motor..... 250
Pump, Chaplin's Pat..... 586
Pump, Clark's Pat..... 35
Pump, Compressor, Ruby & Frey's Pat..... 59
Pump, Foster's Pat..... 347
Pump, Funk's Pat..... 107
Pump, Hess' Pat..... 203
Pump, Kelley's Pat..... 227
Pump, Large Centrifugal..... 251
Pump, Losch's Pat..... 251
Pump, Morgan's Pat..... 179
Pump, Neff's Pat..... 83
Pump, Nevill's Pat..... 323
Pump, Noble's Pat..... 371
Pump, Price's Pat..... 347
Pump Regulator, Davis' Pat..... 586
Pump, Renshaw's Pat..... 83
Pump, Robinson's Pat..... 299
Pump, Rumley's Pat..... 275
Pump, Schneider's Pat..... 610
Pump, Stouffer's Pat..... 275
Pump, Tom's Pat..... 371
Pump, Wock's Pat..... 443
*Pumping Engines, Austin, Tex..... 343
*Pumping Plant, Large..... 585
Puno Silver Mg. Co..... 453
Pupin, M. I., *Thermodynamics of Reversible Cycles*..... 75
Purdue University..... 515
Purdy Placer, Wash..... 113
Pyramid Silver Mg. Co., N. M..... 112
Pyrite and Marcasite, Chemical Behavior..... 603
Pyrites Chemical Co..... 445
*Pyrites Deposits, Louisa County, Va. 415
Pyritic Smelting..... 484
Pyrometer, Brown's Pat..... 562
Pyx Mine, Ore..... 447

Q

Quantitative Analysis.....123, 555
Quartz Mill, McCleery's Pat..... 35
Quarrying Tool, Crouch's Pat..... 59
Quebec Mg. Ass'n..... 84
Queen & Co.....467, 539, 588
Queen of the Hills Mg. Co., Utah 357
Queen Iron Mg. Co., Mich..... 374
Queensland, Coal..... 270
Queensland, Gold..... .....185, 567
Quicke Mg. Co., Mo..... .....159, 255
Quicksilver Mg. Co..... 525
Quicksilver Market..... Weekly
Quicksilver Receipts, San Francisco. 37
Quincy Mg. Co., Cal..... .....205, 516

Quincy Mg. Co., Mich., 11, 52, 69, 152, 203, 230, 278, 323, 326, 419, 422, 446, 518, 517, 525, 541, 566, 614
Quinolin, Vis' Pat. 59

R

Rabers' Pat. Amalgamator 347
Racine Hardware Co 61
Railroad Accidents, Great Britain 466
Railroad Construction 5
Railroad Exhibit at Chicago 155
Railroad Rates, India 361
Railroad Statistics 145
Railroad Strike 602
Railroad Supplies, Manning, Maxwell & Moore 26
Railroads, Bengal 562
Rainy Lake Gold District. 38, 62, 255, 302, 350, 352, 399, 400, 614
Rainy Mg. Co., Wash 520
Rajah Mg. Co., Ont 592
Raleigh's Pat. Gold Precipitation from Cyanide 131
Raleigh's Pat. Gold Slimes Treatment 275
Raleigh's Pat. Stamp 299
Randolph, B. S., Unwatering a Flooded Mine 196
Rand Drill Co 587
Rankin's Pat. Brick Machine 466
Ransome's Patent Concrete Construction 251
Ransome's Pat. Concrete Pipe 203, 347
Rapid-Fire Guns 538
Rapp's Pat. File Machine 107
Rau's Pat. Concrete Mold 371
Raven Gold Mg. Co., Colo 373, 613
Raymond, R. W 563
Raymond, R. W., Amy & Silversmith Case 219
Raymond, R. W., Coal Strike 529
Raymond, R. W., "Mineral Industry," 1893 530
Raymond, R. W., Strikes for Mischief 386
Ray's Pat. Well Drill 299
Raze's Pat. Converters 83
Reading Iron Co 60, 516, 563
Reading Rolling Mill 12
Reading Tube Works 85
*Ready Relief Mine, Cal., Folded Vein 321
Real del Castillo, Mex 472
Red Bird Mg. Co., Colo 357
Red Bluff District, Mont 359
Red Boy Mine, Ore 567, 615
Red Cloud Group, S. Dak 160, 280
Red Cloud Mg. Co., Colo 189
Red Cloud Mg. Co., Idaho, 11, 110, 134, 173
Red Elephant Mine, Colo 86
Redferne, John A 324
Red Horizons, Some New 603
Red Horse Mine, Wash 543
Red Jacket Mg. Co., Nev 111
Red Lodge Coal Mine, Mont 255
Red Point Drift Gravel Mine, Cal 391
Red River Gold Mine, Ala 277
*Reducing Valve, Mason 202
Redwood Falls Coal Mine, Minn 38
Reese, A. L 252
Reese's Pat. Utilizing Iron Ore 466
Rees, W. D 108
Reed's Pat. Hydrocarbon Burner. 419, 466
Refining Bullion, Petraeus' Pat 203
Reibel, Capt. John 309
Reiss' Pat. Smoke Purifier 323
Relocations of Claims 106
Reno Borax Co., Nev 591
Reno Reduction Works, Nev., 207, 333, 495
Renshaw's Pat. Pump 83
Renton Coal Mg. Co., Wash 184
Republican & Democrat Mine, Colo 230
Republic Iron Co., Mich 111, 374
Republic Iron Works 204
Republic Mg. Co., Ala 565
Resinates of Metals, Pirschl's Pat 586
Resurrection Gold Mg. Co., Colo 493
Reunert, T., *Diamonds and Gold in South Africa* 363, 603
Revenue Mine, Mont 182, 350, 374
Reverberatory Furnace, Brook's Pat. 59
Revill, A., *American Plumbing* 267
Reynolds Mine, Cal 319
Reynold's Pat. Boiler 347
Rice's Pat. Ore Treatment 35
Richard, G., *Les Moteurs a Gaz et a Petrole* 75
Richard Mine, N. J 15
Richards' Pat. Furnace 227, 323, 347
Richards, R. H., Close Sizing Before Jigging 153
Richards, S. Allen 587
Richardson, C 204
Richardson Colliery, Pa 170
Richardson's Pat. Nickel-Copper Ore Treatment 227
Richardson's Pat. Nickel Refining 371
Richer, A. G 60
Rich Hill Placer Co 141
Rich, Job 136
Richmond Colliery, Pa 160
Richmond Mine, Wyo 567
Richmond Mg. Co., Nev 11
Rickard, T. A 444
Rickard, T. A., Deepest Gold Mine 100
Rickard, T. A., Gold Milling in Australasia 101, 128
Rickard, T. A., Plain English on Geological Questions 3
*Rickard, T. A., Variations in Milling of Gold Ores 174, 199, 461, 485, 511
Rico-Aspen Mg. Co., Colo. 11, 107, 141, 203, 237, 301, 323, 333, 405, 419, 421, 445, 508, 525, 565
Riddle Mine, Ala 612
Ridge Mine, Colo 373, 517, 613
*Riedler Air Compressor 201, 221
Rigby's Pat. Cement Making 514
Right of Way, Restriction 178
Rio Hondo Gold Mg Co., N. M 591
Rio Tinto Mg. Co., Spain. 401, 409, 414, 472
Rip Van Winkle Mine, B. C 541
Rittenhouse Gap Iron Mine, Pa 328
Road System of Georgia 603
Roane Iron Co., Tenn 64, 157
Roanoke Iron Co 276
Roanoke Machine Co 445
Roaring Fork Mine, Colo 349
Roaring Springs Mg. Co., Mo 86
Roasting Furnace, Vattier's Pat 11
Roasting Kiln, Hoage's Pat 443
Roasting Ores, Stickney's Pat 35
Robbins Coal Co 87
Robbins-Elkhorn Mine, Ore 519
Rober's Pat. Furnace 179
Robert Emmet Mine, Mont 566
Roberts, Herschel 563
Robert's Pat. Carbonizing 11
Robertson's Pat. Stamp-mill Guide 251
Robinson Con. Mg. Co 189
Robinson District, Colo 14
Robinson, E. N 444
Robinson Gold Mg. Co., Transvaal, 362, 371
Robinson's Pat. Dredge Bucket 463
Robinson's Pat. Pump 299
Robinson-Rea Mfg. Co 491
Rob Roy Mg. Co., Utah 16
Roby, L. A 84
Rochester Pat. Dynamite Making 323
Rochester & Pittsburg Coal Co 87
Rock Breaker, Ross' Pat 347
Rock Creek District, Mont 422
Rock Creek Placers, Wyo 375
Rock Crusher, Wyman's Pat 347
Rock Drill (See Drill.)
Rock Drill, Buzzo's Pat 35
Rock Drill, Daw's Pat 490
Rock Drill Valves, Ambrose's Pat 395
Rock Drilling, Githens' Pat 347
*Rock Drilling, Githens' System 248
*Rock Drilling, Water Injection 522
Rock Hill Mines, Colo 493
Rockingham Gold Mg. Co., Colo 573, 597
Rockland & Warren Lime Co., Me 159
Rockport Granite Co., Mass 206
Rocky Bar Placers, Mont 520
Rocky Honcut Placers, Cal 319
Rocky Mt. Coal Co., Wyo 88
Rod Drawing, Haas' Pat 538
Roe's Pat. Wire Tramway Cars 586
Rogers Locomotive Works 180
Rohan & Sons' Boiler Co 612
Rolker, C. M 616
Roller Mill, Hudnall's Pat 443
Rolling Metal, Gafton's Pat 323
Rolling Mill Guide, Day's Pat 179
Rolling Mill Guide, Morrison's Pat 562
Rolling Mill, Haskin's Pat 116
Rolling Mill, Laurie's Pat 107
Rolling Mill, Maddock's Pat 251
Rolling Mill Pile, Sweet's Pat 59
Rolling Mill, Wood's Pat 347
Romaine Brothers 348
Roman Find, Matlock, England 586
Roman's Pat. Aluminum Solder 131
Rome Rolling Mill 612
Ronaldson Coal Tract, Pa 448
Ronan Nickel Prospect, Wis 520
Roney's Pat. Grate 490
Roodepoort Deep Level Co., Transvaal 88
Rope Haulage, Parke's Pat 443
Ropes Gold Mg. Co., Mich 302
Rosebud Mg. Co., Colo 589
Rose's Pat., Treating Phosphate Rock 466
Rose Polytechnic Institute 491
Rose, T. K., *Metallurgy of Gold* 555
Rossie Iron Works 501
Ross' Pat. Pump 347
Roth's Pat., Igniting Blasting Charges 466
Roucheleau-Ray Iron Mine, Minn., 14, 34, 494
Roumanian Coinage 620
Round Mt. Furnace, Ala 61
Rowland's Pat. Welding 490
Royal Gold Mg. Co., Mont. 182, 302, 494
Rubio Canyon Gold Mg. Co., Cal 540
Ruby Gold Mg. Co., Mont. 422, 614
Ruby Mg. Co., Nev 207
Rudholzner's Pat. Electrodeposition 347
Rudisill Gold Mine, Ga 181
Rumley's Pat. Pump 295
Running Lode Mg. Co., Colo 11
Running Wolf Mine, Mont 470
Rush Mine, Wash 40
Russell & Co 611
Russell Gold Mine, N. C 87
Russell, H. A 252
Russell Reduction Co., Colo 357
Russellville Coal Co., Ark 133
Russia, Coal 532
Russia, Gold Mining 339
Russia, Labor in Mining 537
Russia, Imports and Exports 130
Russia, New Iron Works 490
Russia, Oil 50, 52
Russian Finances 363
Russian Iron Ores 221
Russian Petroleum in Germany 466
Russian Railroads 275
Russian Society, Mining Engineers 491
Russian Trade Agents 505

S

*Safety Emery Wheel 274
Safety Emery Wheel Co 228
*Safety Lamp, Gas Testing 149
St. Francois County Lead Mines, Mo. 207
St. Joe Mine, Colo 326
St. John Mg. Co., S. Dak 88
St. Kevin Mine, Colo 373
St. Kevin Section, Colo 373
St. Louis Engineers' Club, 36, 156, 252, 324, 372, 396, 444, 491, 563
St. Louis Placer, Mont 614
St. Mary's Canal Mineral Land Co., Mich 213
St. Paul Civil Engineers' Society, 60, 180, 252
Salem Coal Co., Pa 208
Salem Iron Co 611
Salisbury Iron Mine, Mich 159, 255
Salmon River Placers, Alaska 492
Sal Mt. Asbestos Co., Ga 422, 446, 616
Salt Creek, Cal 398
Salt Lake Bullion and Ore Shipments Weekly
Shepperd's Pat. Gas Engine 586
Salt Lake Copper Co., Utah 64, 470, 616
Salt Lake Onyx Co., Utah 543
Salt Lake Smelters, Utah 328
Salt Lick Oil Co., Pa 304
Salt, Michigan 178
Saltsburg Rolling Mill Co 445
Salt Separation from Magnesium Chloride, Bell's Pat 395
Samaca Iron Works, Columbia 556
*Sampling Machine, Clarkson's Pat. 443, 513
San Carlos Coal Co., Tex 16, 232, 496
Sanchez, Manuel, *Metalurgia del Plomo* 2
Sand Coulee Coal Co., Mont 39
San Francisco Midwinter Exhibition. 11
San Francisco Mining Stock Market, Review 150
Saniter Desulphurizing Process 323
San Juan Smelter, Colo 326
San Martina Mg. Co., Mont. 526, 614
San Miguel County, Colo., Wealth 603
San Miguel Con. Gold Mg. Co, Colo. 541, 565
Santa Gertrudis Mine, Mex 281
Santa Juliana Mg. Co 357
Santa Rosa Mine, Cal 229, 277, 516
Sapphire & Ruby Co., Mont 93
Satterfield, J. J 348
Saturday Night Mine, Mont 518
Sauer's Pat. Boiler 538
Saunders' Pat. Agglomerating Iron Ore 299
Sauntry Iron Mine, Minn 302
Saurer Petroleum Engine 348
Sauveur, A., Microstructure of Steel. 435
Savage, 399, 423, 447, 470, 494, 512, 589, 567, 591, 615
Savage, A. C 396
Savage Mg. Co., Nev., 63, 87, 112, 207, 231, 280, 303, 327, 375
Savill's Pat. Air Pump 131
Saxman Coal Co., W. Va 88
Scandinavian Eng. Society, Chicago, 12, 84, 515
Schaub, J. W 156
Schiffler Bridge Co 228
Schlieper's Pat. Furnace 466
Schmadeke's Pat. Coal Chute 419
Schnabel, Dr., *Handbuch der Metallhüttenkunde* 459
Schneider, A. F 539
Schoenberger & Co 492
Schopper's Pat. Testing Machine 586
Schroller, W 324
Schroter's Pat., Making Sulphonic Compounds 107
Schupphand's Pat Nitro Compound 179
Schulz's Pat. Air Compressor 347
Schuliz Steel and Iron Co 564
Schuylkill Mg. Co., Colo 373
Schwahn's Pat. Aluminous Ore Treatment 155
Schwahn's Pat. Gas Generator 610
Schwahn's Pat. Ore Separation 155
Scorpion Mg. Co., Nev 255, 351, 453
Scotch Lass Mine, N. M 615
Scotia Mine, Mo 86
Scott, G. W 420
Scott's Pat. Mining Machine 35
Scoville Iron Works 5'6
Scranton Eng. Club, 36, 84, 180, 300, 396, 539
Scully's Pat. Coal Chute 562
Search Light, Big, Testing 609
Search Light, Largest 559
Sebastopol Mine, Cal 158
*Sebenius' Rotating Ingot Molds 365
Sedalia Mine, Colo 588
Segregated Belches & Midas Mg. Co., Nev., 15, 39, 63, 87, 112, 207, 231, 280, 303, 375, 399, 423, 447, 470, 491, 542, 567, 589
*Segregation in Steel and Iron, 390, 418, 435
Seiberling's Pat. Glass Furnace 562
Seigniorage Bill 337
Seigniorage, Coining 266
Seigniorage Mine, Colo 565
Sejnoha's Pat. Smoke Consumer 538
Senica Mine, Colo 589
Separator, Butterfield's Pat 299
Separator, Doerflinger's Pat 371
Separator, Foley's Pat 347
Separator, Holt's Pat 131
Separator, Jessop's Pat 275
Separator, Magnetic, Patents 437
Separator, Morse's Pat 155
Sergeant's Pat. Air Compressor Regulator 179
Sergeant's Pat. Mining Augor 11
Serve Ribbed Boiler Tubes 538
Serve's Pat. Boiler 586
Servis, Mineral Resources 106
Sessions' Pat. Water Wheel Regulator 395
Seven Devils District, Idaho 374
Seven-Thirty Mine, Colo 517
Sevier Mg. Co., Utah 592
Seybold's Pat. Phospate Manures 514
Seymour's Pat. Concentrator 131
Shafts, Tamarack, Deepest in the World 565
*Shaft Signal, new 31
Shaft Sinking, Rapid 172
Shaft Sinking, Sachse Process 320
*Shaft Sinking through Quicksand. 30
Shallenberger's Pat. Coal Drill 419
Shanks' Pat. Smoke Arrester 562
Shamus O'Brien Mine, Colo 326
Shann's Pat. Boiler 323
Sharer's Pat. Separator 323
Sharon Furnace 611
Sharon Iron Works 491
Sharp Creek Placers, Ore 448
Sharp, Manager 252
Shaw, G. W., Coinage Reforms 76
Shay, John 12
Shearer's Pat. Steam Hammer 323
Shea's Pat. Stone Cutter 11
Shedd's Pat Engineer's Tape 275
Sheet Iron Manufacturers' Ass'n 36
Sheet Metal Pipe, Hamlin's Pat 395
Sheet Metal Rolling, Grafton's Pat. 443
Sheet Metal Working, Carroll's Pat. 466
Sheet Metal Working, Walsh's Pat. 59
Shelley, F., *Legends of Gems* 75
Shepherd Lime Co., Me 422
Shickshinny Tube Co 276
Shuck & McCord Mines, Ore 423
Siam, Mining 424
Sicilian Asphalt Paving Co 69
Siemens, Werner von, *Personal Recollections* 219
Siepermann's Pat. Cyanide Production 131
Sierra Almegrera, Spain 281
Sierra Buttes Mg. Co., Cal., 11, 488, 205, 421
Sierra County, N. M 244
Sierra Nevada Silver Mg. Co., Nev., 45, 87, 107, 447
Signal Mt. Coal Co., Tenn 352
Silesia, Nickel 514
Silliman, A. P 587
Silvam Mine, Ga 373
Silver in the Arts 19
Silver Certificates 188
Silver Chord Mg. Co., Idaho 182
Silver City, N. M., Ore Shipments 63
Silver Conference, International 91
Silver, Cost in Montana 577
Silver Creek District, Wash 616
Silver Exports to the East Weekly
Silver Exports and Imports 50
Silver Exports and Imports Weekly
Silver, Germany 409
Silver, World's Production 554, 556
Silver Gray Mine, Cal 468
Silver Hill Mg. Co 501
Silver, Indian Experiment 506
Silver, Indian Mint 43, 74, 163
Silver, Italian 475
Silver King Mine, Utah 592
Silver King Mg. Co., Cal 621
Silver Mines, Arizona 103
Silver Mines, Colquechaca 78, 100
Silver Mine Subsidy, Hungary 59
Silver, Price of 121
Silver Prices Weekly
Silver Queen Mine, Alaska 421
Silver Question, England 194
Silver Star District, Nev 374
Silver, Texas 88
Silver, U. S. Production 11
Simmer & Jack Mg. Co., Transvaal. 243
Simonds, Dr. F 515
Simpson's Pat. Lamp Supporter for Miners' Hats 203
Sinsinawa Lead Mine, Wis 113
Siskiyou Coal Mine, Cal 277
Sisum Wire Works 36
Skagit Coal Mg. Co., Wash 610
Skagit-Cumberland Coal Co 616
Skewes, J. W 324
Skiff, F. J. V 128
Skinner, W. R., *Mining Manual* 99, 194
Slag, Economic Uses 392
Slag Removal, Stillman's Pat 83
Slag, Blast Furnace, Smelting Reactions 297
Slag Wool 150
Slate, U. S. Production 79
Slatington Rolling Mill 156
Slaymaker, S. C 132
Sleaman, Wm 60
Slicer's Pat. Asphalt for Roads 155
Slide Mine, Colo 181
Sligo Mill, Pittsburg 60
Sloan & Haskell Mine, Ore 592
Sloss Iron and Steel Co., Ala 83
Slot Machine, Origin 466
Sly's Pat. Crusher 155
Small Hopes Con. Mg. Co 11, 597
Small Hopes Mine, Colo. 37, 206, 493
*Smelting, Electric, De Laval's Method 508
Smelting Furnace, Allen's Pat 443
*Smelting Furnace, Engelbach & Bretherton's 9
Smelting Ores, Austin's Pat 155
Smelting Ores, Lang's Pat 443
Smith, E. A., *Geological Survey of Alabama* 363
Smith, E. C 467
Smith-Moffatt Group, Colo 61, 254
Smith, Raphael P 130
Smithsonian Institution Report. 219, 435
Smith's Pat. Casting Mold 83
Smith's Pat., Casting Steel Ingots 323
Smith's Pat. Electric Pickling Vats. 443
Smith's Pat. Gas Generator 323
Smith's Pat. Kiln 371
Smith's Pat. Puddling Furnace 466
Smith's Pat. Rock Drill 538
Smith, Worthington C 12
Smoke Arrester, Shanks' Pat 562
Smoke Catcher, McGahan's Pat 227
Smoke Consumer, Sejnoha's Pat 538
Smoke Consuming Apparatus 562
Smokeless Powder 275
Smuggler Mg. Co., Colo 446
Smuggler-Union Mg. Co., Colo. 107, 203, 301, 323, 349, 419, 469, 493, 508, 517, 541
Smuggler-Union & Sheridan-Mendota, Colo 61
Smythe, S. R., Co 587
Snake River Mg. Co 564
Snake River Placers, Idaho 469
Snell's Pat Oil Storage 466
Snow Creek Mine, Ore 160
Snow Flake Tunnel, Wyo 160
Snow's Pat. Brick Kiln 59
Soda Phosphate, Ourholt's Pat 251
Soderstrom's Pat. Ore Car 203
*Sodium, Improvements in Making 589
Sodium Prices Weekly
Soldering Lamp, McBride's Pat 275
Solvay, A 156
Solvay's Pat., Purifying Ammonia 395
Somers' Pat. Hydrocarbon Burner. 323
South Africa, Diamonds and Gold. 363, 603
South Africa Mine, Idaho 541, 614
South Africa, Minerals 555

South African Gold Mines..... 386
Southard's Pat. Furnace..... 35
South America, British and American Machinery in..... 481
South Australia.....424, 472, 568
South Australia, Cyanide Process... 49
South Australia, Gold 137, 185
South Australia, Mines 376
South Australian Minerals..... 531
South Australian School of Mines.... 459
South Carolina Phosphates.....136, 232
South Dakota Mines, 1893..... 16
South Dakota Mg. Co.....16, 400
South, Engineering Ass'n. 204, 252, 372, 515, 611
Southern Bauxite Mg. Co., Ala....565, 612
Southern Cross Mg. Co., Mont. 309, 374, 470, 520
Southern Immigration, Land and Title Co.....578, 564
Southern Iron Co., Tenn..... 113
Southern Mining and Metallurgical Practice..... 433
Southern and New York Meeting.... 582
Southern States, Gold and Silver Mining..... 149
Southern Steel Works..... 36
South Penn Oil Co., W. Va..... 448
South Spring Hill Mg. Co., Cal..... 110
Southwest Connellsville Coke Co., Pa. 208
Southwest Virginia Improvement Co. 448
Sovereign Mg. Co., Colo..... 565
Spain, Coal..... 329
Spain, Coal Imports..... 257
Spain, Iron..... 227
Spain, Iron Ore..... 305, 416
Spain, Mining Annual..... 603
Spain, Ore Exports 544
Spang Steel and Iron Co .109, 253, 564, 611
Spaulding's Pat. Stone Polishing 251
Speed Secret 507
Spelter Prices..... Weekly
Spelter, U. S. Production.....73, 97
Spence, H. S..... 276
*Speer, F. W., Differential Manometer 419
Sperry's Pat. Furnace..... 203
Sperry's Pat. Liquid Fuel Furnace.. 419
Spier's Pat. Treating Refractory Ores..... 251
Spike Making, O'Neill's Pat..... 610
Spotted Horse Mine, Idaho..... 373
Springer's Pat. Boiler Feed..... 371
Spring Valley Coal Co., Ill..... 565
Spur-Daisy Mg. Co., Colo 85
Spurr, J. E., *Iron Bearing Rocks of the Mesabi*..... 603
Spurr, J. E., Iron Ores of the Mesabi Range..... 583
Stacy's Pat. Furnace..... 107
Staffordshire Iron Trade..... 389
Stallman's Pat. Slag Removing..... 83
Stamp Mill, Carter's Pat..... 59
Stamp Mill Guide, Robertson's Pat 251
Stamp Mill, Raleigh's Pat..... 299
*Stamp Mills, Improved Mortar..... 535
*Stamp Mills, Blanton Cam..... 227
Stamp, Steam, Tremain's Pat 227
Standard Con. Mg. Co., Cal., 11, 37, 181, 189, 205, 213, 323, 344, 419, 429, 508, 517, 541
Standard Firebrick Co., Mont..... 518
Standard Gold Mg. Co., N. M..... 351
Standard Iron Works..... 180
Standard Mg. Co., Idaho..... 182
Standard Oil Co.....50, 62, 348
Standard Oil Co. and Russian Oil Syndicate..... 50
Standard Ore Co., Minn..... 614
Standard Phosphate Co., Fla..... 373
Standard Placer Co., N. M..... 63
Stansfield, H..... 372
Star of Hope Mine, Colo..... 61, 254, 398
Star Mine, Cal..... 13
Star Mine, Idaho.....110, 422
Star of the West Mg. Co..... 141
Starkey's Pat. Brick Dryer..... 131
Stark County Coal Mine, N. Dak.... 307
*Starting Lever for Mill Engines..... 101
State of Maine Lime Co..... 566
State Ore Sampling Co., Colo..... 445
Statistics, Worthless..... 313
"Steam"..... 531
Steam Boiler Inspection..... 61
Steam Engine and Other Heat Engines..... 531
Steam Generator, Birdsall's Pat. 86
Steam Generator, Finlayson's Pat... 443
Steam Hammer, Beche's Pat..... 179
Steam Hammer, Shearer's Pat..... 323
Steam Machinery and the Marine Engine..... 123
Steam Shovel, Holmes' Pat..... 490
Steamer Coal, Drawback..... 521
Steamer "Priscilla"..... 582
Stearns, E. C., & Co 85
Stearns' Pat. Gas Generator..... 371
Stearns, W. E..... 587
Stedman's Foundry and Machine Works..... 228, 276, 397
Stedman's Pat. Disintegrator..... 371
Steel, Basic, in 1893..... 146
*Steel Belt Lacing..... 366
Steel for Bridgework..... 564
Steel Castings, Hutchinson's Pat..... 514
Steel Casting, Washburn's Pat..... 107
Steel Hardening..... 246
Steel Hardening, Ashworth's Pat..... 203
Steel Hardening, Hammerfahr's Pat. 395
*Steel and Iron, Segregation in, 390, 418, 435
Steel, Manganese, for Mining Purposes..... 385
Steel, Microstructure..... 531
Steel, Open-hearth, Great Britain.... 362
Steel Plates, Compound, Chatwood's Pat..... 11
Steel Process, Parkinson's Pat..... 11
Steel Refining, Thwaite's Pat..... 347
Steel, Tungsten in..... 531
Steel Works, New, in Russia..... 490
Steele, Charles S..... 300
Stephens Mine, Ore..... 448
Sterling Coal Co., Utah 471, 519
Sterling Iron and R. R. Co., N. Y..... 189
Sternbergh Bolt and Nut Works..... 85
Stetefeldt, C. A., on Torr's Metallurgy..... 435
Stevens Coal Co., W. Va..... 88
Stevenson, J. D..... 156
Stevenson, Robert..... 180
Stevenson, W. H..... 252
Stewart Iron Co..... 445
Stewart Mg. Co., Utah..... 375
Stewart's Pat. Gold Separator..... 83
Stickney's Pat. Converter..... 371
Stilliguamish & Sultan Mg. Co., Wash..... 544
Stockbridge, F. B..... 420
Stock Markets, Boston.....Weekly
Stock Markets, London.....Weekly
Stock Markets, New York.....Weekly
Stock Markets, Paris.....Weekly
Stock Markets, San Francisco....Weekly
Stock Quotations, Coal and Industrial, Weekly
Stock Quotations, Aspen, Baltimore, Boston, Colorado Springs, Denver, Duluth, Helena, London, New York, Paris, Philadelphia, Pittsburg, St. Louis, Shanghai..... Weekly
Stocks, Dividend Paying Mines..Weekly
Stocks, Non-Dividend Mines.....Weekly
Stone, Artificial, Grote's Pat..... 556
Stone, Artificial, Ransome's Pat..... 395
Stone, Artificial, Wallenberg's Pat... 347
*Stone Breaker, Farrel 273
Stone Bridge, Large..... 155
Stone Cutter, Shea's Pat..... 11
Stone Cutter's Hammer, O'Donnell's Pat 107
Stone Dresser, Lohr's Pat..... 11
Stone Dressing, Ostberg's Pat..... 59
Stone Dressing Tool, Howard's Pat.. 131
Stone Polishing Machine, Spaulding's Pat..... 251
Stone Saw, Litchford's Pat..... 466
Stone Saw, Norcross' Pat..... 35
Stonington Brick and Pottery Co., Miss..... 230
Stonewall Phosphate Co..... 446
Stoneworking Machine, Hernon's Pat. 131
Storck's Pat. Concrete Block..... 35
Storm Lode, Colo..... 540
Stoping Ground, Historical Notes on. 123
Storer's Pat. Oil Well Casing 466
Storr's Pat. Roasting Furnace..... 299
Stotesbury vs. State National Camp.. 493
Stouffer's Pat. Pump..... 275
*Strachan Coke Oven..... 154
Stow Mine, Cal..... 157
Straub's Pat. Grinding Mill..... 83
Strawberry Mine, Wyo..... 567
Stray Horse Gulch Mg. Co., Colo.. .. 493
Strike Cases, Northern Pacific..... 393
Strike, Coal Miners', 397, 401, 425, 449, 473, 482, 497, 529, 545, 601
Strike, Gogebic Iron Range..... 377
Strike, Great Northern R. R..... 422
Strike, Railroad..... 602
Strikes..... 313
Strikes for Mischief..... 386
Strong Mine, Colo..... 37
Strussholm's Pat. Kiln..... 371
Stuart, Granville..... 228
Stuckey's Pat. Brick Machine..... 586
Stuckey's Pat. Concentrator..... 371
Sturgis Coal Co., Ky..... 541
Subaqueous Rock Breaker, Ross' Pat. 347
Sudbury District, Ont.....376, 400, 401
Sudbury Nickel Ores..... 99, 123
*Sudbury Nickel Region..... 245
Sudden's Pat., Preserving Piles..... 11
Suez Canal 562
Sugar Loaf & St. Kelvin Mines, Colo. 326
Sullivan Machinery Co 156
Sulphate of Ammonia, Duty on..... 275
Sulphate Production from Residues, Chatfield's Pat..... 586
Sulphide Smelting, Bennimann's Pat. 59
Sulphide Mg. Co., Colo..... 469
Sulphuric Acid Concentration..... 203
Sulphuric Acid Concentrator, Bradbury's Pat..... 155
Sulphuric Acid, Concentrating, Levinstein's Pat..... 59
Sulphuric Acid Recovery, Levinstein's Pat..... 59
Sulphur Mines Co., Va..... 304
Sulphur Water, Effect on Pumps..... 83
Sultana Mine, Colo..... 613
Sultana Mine, Ont.....233, 592
Sum-Dum Mines, Alaska..... 229
Summerhayes' Pat. Concentrator Belt 107
Summit Gulch Mg. Co., Colo..... 181
Summit Mg. Co., Colo..... 349
Sunday Lake Iron Mine, Mich..... 518
Sunrise Mg. Co., Cal.....319, 516
Sunrise Mg. Co., Mont.....86, 135
Sunset Mine, Wash..... 448
Sunshine Mine, Utah..... 375
Superior Mg. Co., N. J..... 591
Superior Steel Co..... 491
Surveying and Surveying Instruments..... 291
Susquehanna Coal Co., Pa..... 518
Swain & Dixon Mine, Fla..... 446
Swain's Pat. Gas Engine..... 490
Swanzey Iron Co., Mich..... 111
Swedish Billets, Duty on..... 395
Sweden, Iron.....64, 102, 217
Sweeney's Pat. Power Hammer..... 179
Sweet, Elias 420
Sweet's Pat. Rolling Mill Pile..... 59
Switzerland, Electric Power..... 83
Switzerland, Mining..... 203
Sylvan Steel Co..... 445
Symonds' Pat. Dredge Bucket..... 179
Symond's Pat. Drill..... 251
Syndicate Mine, Colo..... 445

T

Talala & Iron Mt. Coal Co., Ind. Ter. 86
Talbot & Jones Placers, Mont..... 613
Talc Mine, Cal..... 254
Taku Mg. Co., Alaska..... 61
Tamaqua Mfg. Co..... 467
Tamarack, Jr., Mg. Co., Mich., 111, 182, 302, 614
Tamarack Mg. Co., Mich., 11, 182, 242, 278, 326, 446, 477, 505, 517, 593
Tamarack Deep Shafts.....192, 242
Tam o' Shanter Mine, Ont.....40, 137
Tank Car, Mackenzie-Hughes' Pat.... 59
Tappan Steam Co..... 565
Tariff Bill, New, 25, 26, 51, 98, 121, 211, 217, 235, 259, 265, 284, 307, 332, 356, 379, 483
Tarr, Ralph S., *Economic Geology of the United States*..... 75
Tarr's Metallurgy..... 435
Tarryall Creek Gold Mg. Co., Colo... 421
Tasker's Pat. Tube Making..... 107
Tasmania Mineral Industry 384, 389
Tasmanian Exposition.....145, 183
Taubate Coal Mine, Brazil..... 328
Taussig's Pat. Electric Smelting.... 251
Taussig System of Treating Ores 130
Taylor, J. H..... 444
Taylor Mine, Colo..... 493
Taylor, N. & G..... 539
Taylor's Pat. Boiler..... 179
Teabo Iron Mine, N. J..... 303
Tecumseh Iron Co., Ala..... 420, 565
Teel & Poe Mg. Co., N. M..... 231
Tehuantepec R. R., Mex 81
Telegraph Mine, Mont..... 542
*Telemeter Target..... 129
Telephone Lines..... 219
Telluride, Colo., Ore Shipments..Weekly
Tempera e Cementazione 555
Templeton, W., *Practical Mechanic's Workshop Companion*..... 123
Tennessee Canal..... 148
Tennessee Coal, Iron and Ry. Co., 113, 157, 213, 233, 414, 519, 597
*Tennessee Phosphate Rocks.....366, 417
Tennessee & Pittsburg Copper Co.... 280
Tennessee Producers' Marble Co..... 136
Tennessee Slate Co..... 40
Tesla, Nikola, Inventions and Researches..... 75, 387
Tesla's Pat. Steam Engine..... 371
*Testing Machine, Phœnix Hydraulic 5
Testing Machine, Schoppen's Pat..... 586
Texas Iron Ores..... 222
Texas Mine, Cal..... 540
Texas Mine, Colo..... 349
Texas Mine, N. M.....15, 208
Texas Star Mine, Idaho 326
Thayer's Pat. Coal Drill 275
Thayer's Pat. Gas Engine..... 323
Thermo-Electric Generator, Cox's Pat. 395
Thermometer for High Temperatures 512
Thespian Mine, Colo..... 301
Thiell's Pat. Air Supply for Furnaces. 227
*Thofehrn's Pat. Electro-deposition of Metals.....466, 513
Thofehrn's Pat., Making Metallic Oxides..... 131
Thomas, A. P..... 467
Thomas' Pat. Furnace..... 490
Thompson Falls Mg. Co., Mont..... 159
Thomson Gold Mg. Co., S. C..... 256
Thomson-Houston Electric Co..... 180
Thomson's Pat. Chainmaking..... 83
*Thomson's Pat. Electric Furnace 131, 151
Thomson's Pat. Electric Welding.... 11
Thunderstorm, Genesis 412
Thusnelda Mg. Co., S. Dak..... 280
Thwaite's Pat. Electric Fusion..... 395
Thwaite's Pat. Refining Steel..... 347
Tidal Rivers 363
Tientsin R. R., China, Extending.... 363
*Tierra Seca Gold Separator..... 341
Tiffany's Pat. Clay Mill..... 419
Tiger Mine, Idaho, 62, 182, 278, 446, 494, 589
Tilden Iron Mine, Mich..... 447
Tile Dresser, Rape's Pat..... 107
Tin Cans, Corner on..... 564
Tin Mining, Cornwall..... 145
Tin Mining, Underground, Perak.... 513
Tin-plating Machine, Britton's Pat.. 395
Tin, Prices..... Weekly
Tin Recovery from Scrap, Hollis' Pat. 35
Tin Recovery from Scrap, Hunter's Pat..... 53
Tinned Plate Manufacturers' Ass'n. 544
Tip Top Mine, Colo..... 301
Tip Top Mine, Idaho..... 593
Titanium, Separation from Iron 610
Titcomb's Pat. Dredge.....203, 227, 251
Tivoli Electric Station, Italy..... 485
Tochiaturi Manganese Mines, Russia. 377
Todd's Pat. Distilling Oils..... 251
Tod, Wm., & Co..... 228
Tom's Pat. Pump..... 371
Tonkin, W. C..... 276
Tonquin, Coal..... 124
Tonquin Mining Law..... 161
Topography, Treatise on..... 27
Tornaghi's Pat. Amalgamator.....107, 247
Torpedo Boat, Launch..... 459
Tory Mine, Wash..... 496
Totten & Hogg Foundry Co..... 492
Tourtelotte Park, Colo..... 540
Towne, Nathan R..... 300
Townsend, Eugene..... 158
Toy's Pat. Puiverizer..... 562
Trade Dollar Mg. Co., Idaho...14, 110, 182, 446, 493, 565, 589
Transvaal Coal Trust.....88, 544
Trautwine, John C., Jr..... 372
Traverse Mine, Ont..... 137
Treadwell Lode, Alaska..... 612
Treat's Pat. Boiler..... 562
Treat's Pat. Transfer Table for Rolling Mills..... 275
Tremain's Pat. Steam Stamp..... 227
Trench Mine, Ari..... 205
Tresidder's Pat. Chilling Armor Plates..... 35
Trill Mine, Ont..... 157
Trinidad Mine, Mex 281
Trinity River Hydraulic Co., Cal., 11 107, 203, 323, 419, 508
Trio Mg. Co., Cal..... 453
Trounson's Pat. Drill..... 299
Troy Mine, Colo..... 613
Truax Mfg. Co..... 228
Trug's Pat. Amalgamator..... 371
Trump's Pat. Compressor..... 371
Tube Drawing, Lane's Pat..... 35
Tube Drawing, Larson's Pat..... 443
Tube Making, Tasker's Pat..... 107
Tuckerman's Pat., Electric Mg. Lamp 203
Tug River Salt and Coal Co., Ky..... 111
Tumbling Barrel, Morgan's Pat..... 59
Tungsten in Steel..... 531
Tunnel, Palisades..... 251
Tunnel, New York Water-Works.... 31
Tunnel Under the Seine..... 443
Tunneling Machine, Lake's Pat..... 11
Turbine, Hopkins' Pat..... 610
Turbine Wheel, Packer's Pat..... 586
Turkey Hill Mine, Ga..... 254
Turkey Knob Coal Co., W. Va..... 137
Turkey, Mining Grants..... 181
Turner, J. S..... 372
Turner's Pat. Furnace..... 419
Turonsky's Pat. Grate Bar 107
Tuttle, S..... 252
Tuyeres, Graves' Pat..... 347
Twelve Pole Mg. Co., W. Va 88
Twin Lakes Placers, Colo..... 110

U

Uehling, E. A..... 204
Uehling's Pat. Gas Analysis..... 586
Uintah Sulphur Plant, Wyo..... 352
Umatella Mine, Mont..... 614
Umtali "Advertiser"..... 242
Underground Connection at Leavenworth, Kan..... 247
Union Brass Mfg. Co..... 539
Union Coal Co., Ill..... 470
Union Coal Co., Pa.....136, 470
Union Con. Mg. Co., Nev 160
Union Copper Mg. Co., Mich..... 182
Union Gold Mg. Co., Colo.... 508, 525, 613
Union Gulch, Colo..... 565
Union Iron and Steel Co..... 491
Union Iron Works..... 133
Union Leasing Co., Colo.....110, 493
Union Mg. Co., Md..... 134
Union Mg. Co., Utah..... 616
Union Mg. Co., W. Va..... 375
Union Pacific Coal Co., Wyo.. .... 40, 88
Union Rolling Mill Co..... 396
Union Smelters, Colo.....254, 301, 373, 589
United Coal Co., Colo..... 14
United Concentration Co., Wash..... 520
United Mexican Mg. Co., Mex..... 471
United Mines Co., Colo., 14, 158, 206, 373, 613
United Mine Workers' Ass'n...160, 161, 301
U. S. Bonds, Issue.....67, 91, 116, 140
U. S. Car Co..... 253
U. S. Coal Co., Colo..... 565
U. S. Coal Exports..... 27
U. S. Coal Production....218, 243, 265, 289
U. S. Copper Production..... 193
U. S. Failures..... 619
U. S., Ferro-Manganese..... 217
U. S. Foreign Commerce..... 91
U. S. Glass Co 109
U. S., Iron and Steel Production, 1, 73, 79, 241, 337, 433, 553
U. S. Iron and Steel Works, Directory 578
U. S. Lead Production..... 169
U. S. Mineral and Metal Production, 289, 482
U. S. Mint..43, 163, 379, 427, 548
U. S. Pipe Line Co..... 470
U. S. Silver Production..... 1
U. S., Slate Production..... 79
U. S. Treasury Statement..... Weekly
U. S., Wealth of..... 434
U. S., Zinc Production.....73, 97
United Verde Copper Co., Ari., 109, 141, 205, 588
Unwatering a Flooded Mine..... 196
Upham's Pat. Asphalt Refining..... 59
Urbanitzky's Pat. Electric Furnace.. 227
Urquhart's Pat. Clay Crusher..... 11
Utah Agricultural College 507
Utah Con. Mg. Co., Nev.....160, 567
Utah Gold Mg. Co.....11, 592
Utah, Precious Metal Production.... 202
Utah Portland Cement Co..... 543
Utah Sulphur Co., Utah..... 136
Utica Mine, Cal.....157, 349, 398

V

Vagrancy in Foreign Countries..... 243
Valentine Furnace..... 467
Valentine Iron Co.....300, 324
Valenzuela Con. Mg. Co..... 501
Validity of Contract..... 604
Valley View Mg. Co., Mont.....350, 374
Valve, Erichsen's Pat..... 155
Valve, Jenks' Pat..... 371
*Valve, Lunken Renewable..... 10
Valve for Rock Drills, Ambrose's Pat. 395
Van Amringe, J. H..... 252
Van Beneden, P. J..... 36
Van Berkel's Pat., Making Carbonic Oxide..... 131
Vanderbilt Mg. Co., Cal.....61, 588
Vanderbilt University..... 132
Vanderwerker, Dickinson & Co..... 324
Van De Water, J..... 396
Van Wagoner & Williams Co..... 348
Vapor Burner, Billings' Pat..... 490
Vapor Burner, Lannert's Pat..... 323
Vaporizer, Knight's Pat..... 371
Vattier's Pat. Dust Roaster..... 11
Vautin, C., Commercial Electrolysis of Fused Salts..... 559
Vautin's Electrolytic Sodium Process 345
Vautin's Pat., Aluminum Sulphides, 59, 131
Vautin's Pat. Electrolysis..... 203
Vendor's Lien, Waiving..... 580
*Velardena Mines, Mex..... 29
Ventilation, Mine 435
Ventilating Fan, Hochs' Pat..... 562
Vesuvius Mine, Wyo..... 352
Victor, Dr..... 204
Victor Mg. Co., Colo., 11, 14, 21, 37, 107, 203, 323, 419, 508
Victor Phosphate Co..... 446
Victoria, Gold..... 185, 209
*Vicuna's Pat. Copper Smelting Furnace..... 490, 533
Viertong Group, Cal..... 448
Vigo Coal Co., Ind..... 86
Viking Gold Mg. Co., Utah..... 13
Virginia Ass'n of Engineers, 84, 156, 252, 324, 396, 515

Virginia Coal Co., Va 137
Virginia Con. Mg. Co., Cal.....357, 405
Virginia Dale Mine, Cal..... 229
Virginia-Florida Phosphate Co., Fla.. 373
Virginia Industrial Exposition..... 328
Virginia, Manganese Ore..... 602
Virginia Mineral R. R. Co..... 381
Virginia Miners' Union..... 87
*Virginia, Pyrites Deposit..... 414
*Virginia, Wise County Coal Measures..... 505
Virginius Mine, Colo 181, 254, 613
Virgin Mine, Wyo..... 496
Virgoe, W. H., Cyanide Process 533
Virtue Mine, Ore..... 615
Vis' Pat. Chemical Compound..... 59
Volunteer Mine, Mich..... ..86, 353, 374
Von Rosenberg, Leo..... 60
Voorhees, Theodore..... 444
Vulcan Iron Mine, Mich..... 278
Vulcan Mg. Co., Idaho..... 326

W

Wadsworth, M. A..... 563
Waite's Pat. Electric Pump..... 299
Waitt's Pat. Concentrator..... 131
Wages, German Mining..... 485
Walcott, Charles D..... 515
Walker Brothers Pat. Cable Haulage. 490
Walker-Deane Mg. Co., Cal..... 254
Walker, Edward..... 148
Walker, John..... 300
Walker's Pat. Coal Elevator Dump.. 347
Walker's Pat. Roasting Furnace 299
Wallace Electric Co..... 611
Wallace & Sons..... 253
Wall, E. B 324
Wallenberg's Pat. Artificial Stone... 347
Waller's Pat. White Lead Making.... 83
Wallwork's Pat. Ore Grinder..... 347
Walmesley, O., *Guide to the Mining Laws of the World*..... 195
Walrand Steel Process..... 347
Walsh's Pat. Furnace..... 227
Walsh's Pat. Sheet Metal Worker, 11, 59
Walter & Ferris Coal Co., O 61
Walters & Gardner Gold Mine, Va.. 232
Walton's Pat. Boiler 203
Walton's Pat. White Lead..... 131
Wanklyn's Pat. Distilling..... 610
War Dance Mine, Idaho.....158, 230
Ward District, Colo 517
Wardner District, Idaho 398
Ward-Whitlock Mine, Cal 588
War Eagle Group, Mont..... 422
Warner, George C..... 132
Warner Group, Colo..... 469
Warner, H. H..... 593
Warner's Pat. Mining Drill..... 35
Warren Foundry and Machine Co.... 12
Warren's Pat. Mine Door..... 251
Warships Launched in 1893..... 104
Washburn's Pat., Casting Steel. 107
Washington, Coal..... 504
Washington Mine, Cal..... 205
Washington, Placer Locations..... 305
Water Elevator, Campbell's Pat..... 179
Waterloo Mg. Co., Cal..... 468
Waters, A. L..... 228
Water Wheel, Chase's Pat..... 586
Water Wheel, Gould's Pat..... 419
Water Wheel Regulator, Sessions' Pat..... 395
Watkins, J. Elfreth..... 156
Watkins, W. M..... 156
Watson, E. P., *How to Run Engines and Boilers*..... 435
Weatherhead's Pat. Air Pump..59, 83, 107, 179, 203, 538
Weather Making, Ancient and Modern 435
Weaver's Pat. Gas Making..... 131
Webb City District, Mo..... .... 541, 590
*Weber Gas Engine..... 299
Weber Gas Engine Co..... 491
Weber Mg. Co., Idaho.....254, 520
Weber, R..... 324
Webster Mg. Co., N. C 573
Weddle, J. H..... 36
Wegener's Pat. Coal Dust Firing..... 490
Wegener's Pat. Furnace.....299, 347
Weir, Thomas..... .....180, 276
Welden Mine, Colo..... 493
Welding Apparatus, Rowland's Patent..... 490
Well Drill Bit, Horton's Pat..... 347
Well Drill, Ray's Pat..... 299
Well Drill, Wyman's Pat..... 443
Well Drilling, MacKachen's Pat..... 107
Wellman Iron and Steel Co...467, 516, 588
*Wellman's Open-hearth Steel Furnace..... 442
Wellman, S. T..... 539
Wells-Fargo Mine, S. Dak..... 64
Wells Mine, Idaho 589
Wellston Coal District, O..... 126
Werner, August..... 84
Wersley's Chlorine Absorption Process..... 610
Westbrook Coal Mine, Ala 181
West Con. Virginia & California Mg. Co., Nev.....112, 231, 256, 303, 351, 470
West Elba Mine, Mont..... 15
West Harmony Mg. Co., Cal..... 468
West Mt. Placer Mg. Co., Utah 519
West Silver Mg. Co..... 141
West View Mine, Colo..... 181
West Virginia Central & Pittsburg R. R..... 182
Western Australia Goldfields, 188, 352, 438, 461, 598
Western Coal Co., Ark.....13, 85
Western Federation of Mines.... . 492
Western Foundrymen's Ass'n, 169, 228, 396, 515
Western Mine Enterprise Co., Mont.. 470
Western Oil Co., Colo 134
Western Pennsylvania Engineers' Society.....12, 108, 228, 444, 515
Western Pennsylvania Mg. Institute 12
Western Society Engineers.....36, 420
Western Union Bridge Co... 587
Westinghouse Electric Co., 253, 453, 467, 492
*Westinghouse Electric Mining Plant 33
Westinghouse Machine Co 85
Westmoreland Coal Co., Pa....39, 88, 329
Westwood Coal Co, Pa..... 39
Whaleback, Ocean 538
Whale Mine, Idaho..... 517
Whale Mg. Co., Colo..... 597
Wharton Furnace..... 300
Wheeler Forging Co..... 564
Wheeler, H. A., Feasibility of Clays.. 224
Wheeler Projectile Works..... 491
Wheeler, W. H., Tidal Rivers 363
Wheeler's Pat. Pipe..... 371
Wheeling Steel and Iron Co., 276, 324, 520, 612
White Cloud Mine, Mont 422, 615
White, H. W., Co..... 587
White Lead Making, Kilpatrick's Pat 59
White Lead Making, Waller's Pat... 83
White Lead Production, Morris' Pat. 107
White Lead Workers' Health in England 83
White Lead, Walton's Pat..... 131
White & Middleton Gas Engine Co... 324
White Pine, Nev..... 39
White's Pat. Beam..... 11
White's Pat. Drop Hammer..... 11
White's Pat. Gas Making..... 371
White Spar Mine, S. Dak..... 400
White Swan Mine, Ore 160
Whitaker Cement Works..... 85
Whitney, Prof. W. D..... 514
Whitney View Mg. Co., Cal 468
Whittaker Mill..... 539
Wilbur Placers, Wash..... 592
Wilcox, John F..... 324
Wildcat Mine, Colo 14
Wildman Mine, Cal..... .....254, 492
Wild's Pat. Basic Steel Process..... 299
Wilkinson's Pat. Furnace..... 538
Wilkinson's Pat., Refining Asphalt.. 59
Wilkeson, John..... 324
Williams, A..... 156
Williams, B. J 372
Williams Coal Co., Pa..... 280
Williams & Corder, Idaho 613
Williams, E..... 132
Williams, Frank..... 300
Williams, M. F., & Co 611
Williams' Pat. Car Dump 179
Williams' Pat. Pipe Former..... 371
Williams, G. W..... 420
Williamson Iron Co 85
Wilson, H. M., Irrigation Surveys ... 243
Wilson Machine Co..... 12
Wilson's Pat. Miner's Lamp..... 35
Windfall Mine, Ari..... 492
Wind Power and Electricity..... 131
Wind Velocities..... 244
Wind Wheel, Kelso's Pat..... 83
Wide World Mine, S. Dak..... 352
Wiggins' Pat. Grate..... 323
Winkler's Shaft Signal..... 31
Winnemucca Mine, Mont 469, 614
Winslow, Arthur 457
Winslow, A., *Coal Measures of Missouri*..... 339
Winslow, A., *Geological Surveys of Missouri*..... 339
Winslow, A., *Lead and Zinc Deposits of the Mississippi Valley*... 339
Winthrop Iron Mine, Mich..... 255
Winton, C..... 491
Wire Screens in Stamp Mills..... 644
Wire Tramway in the Alps 124
Wire-wound Steam Pipes..... 83
Wisconsin University.....252, 603
Wise Coal Co., Mo..... 14
Witwatersrand Gold District, Transvaal.....88, 209, 233, 401, 496, 580, 602
Witherow, James P..... 150
Wock's Pat. Pump..... 443
Wood, Henry, *Political Economy of Natural Law*..... 147
Wood & Jenson Mine, Utah, ... 88
Wood Novelty Works..... 348
Wood's Pat. Dredge Fort..... 35
Wood's Pat. Rolling Mill..... 347
Wooden Pipe, Wheeler's Pat..... 371
Woodland Oil Co., Pa..... 256
Woodstock Iron Co..... 516
Woodward, C. M., *Manual Training Schools*..... 170
Wolcott Mine, Colo., 37, 61, 134, 230, 301, 349, 373
Wolf Creek Placers, Ore..... 183
Wolff's Pat. Air Pump..... 395
Wolff's Pat. Miner's Lamp..... 562
Wolters' Pat. Sulphuric Acid..... 203
Wolverine Mg. Co., Mich., 38, 62, 278, 279, 447, 541
Work Mg. Co., Colo.....110, 277, 349
Worley Mine, Ga..... 230
World's Fair Mine, Ari..... 205
Worthington Mine, Ont..... 40
Wrapper Holder, Glasgow's Pat..... 35
Wright's Pat. Galvanizing Wire..... 371
Wright Steam Engine Works..... 36
Wrought Iron, Ladd's Pat..... 347
Wunthoo Gold-fields, India..... 189
Wyatt & Saarbuck..... 444
Wylie's Pat. Pipe Making..... 35
Wyman's Pat. Crusher..... 347
Wyman's Pat. Well Drill..... 443
W. Y. O. D. Mg. Co., Cal., 11, 107, 203, 323, 419, 508
Wyoming, Coal 64
Wyoming Mg. Co., Wyo..... 448
Wyoming Pipe Line Co.... 471
Wyoming University..... 420

X

Xihuamo District Placers, Mex..... 329

Y

Yahoola Mine, Ga..... 278
Yak Mg. Co., Colo.....398, 469, 589
Yale & Towne Mfg. Co..... 397
Yankee Girl Mine, Colo 613
Yankee Mine, Utah..... 567
Yarnell Mine, Ari..... 421
Yellow Jacket Mg. Co., Idaho,..278, 517
Yerrington, James D..... 12
Yesca Gold Mg. Co., Mex.....152, 400
Yogo District, Mont..... 590
Yonah Mg. Co., Ga..... .... 86, 373
York Iron Co., Mich..... 374
York Phosphate Co., Fla..... 373
Yorkville Gold Mine, Ga..... 422
Youghiogheny Gas Coal Co., Pa..... 208
Younger, James M 420
Younger's Patent Dirt Loader..... 490
*Young Nut-Lock..... 131
Youngstown Bridge Co..... 445
Youngren's Pat. Kiln..... 347
Yusilanti Mine, Colo..... 110
Yukon River Placers, Alaska. .. .397, 588

Z

Zabriskie, E. B..... 587
Zasirow's Pat. Crane..... 155
Zenith Iron Co., Min..... 541
Zinc-Lead Sulphide Process, Emmens' Pat 131, 347
Zinc Metallurgy, Choate's Pat..... . 251
Zinc Metallurgy, Lynen's Pat..... 131
Zinc Metallurgy, Francisci's Pat 203
Zinc Ore Deposits, New Mexico..... 532
Zinc Ore, Joplin Market.....Weekly
Zinc Ore Prices..... 491
Zinc Ore Treatment, Ingal's & Wyatt's Pat..... 251
Zinc Ore Treatment, King's Pat..... 119
Zinc Oxide Manufacture, Gray's Pat. 299
Zinc Oxide Paint, Laurie's Pat..... 155
Zinc Producing, Choate's Pat..... 419
Zinc Production in the Blast Furnace. 508
Zinc Production, Choate's Pat..... 59
Zinc, U. S. Production.....73, 97
Zorbey, F. E..... 396
Zoppetti, V., *Manuale di Siderurgia*. 603
Zug & Co., Pittsburg..... 36
Zweig's Pat. Flask..... 371